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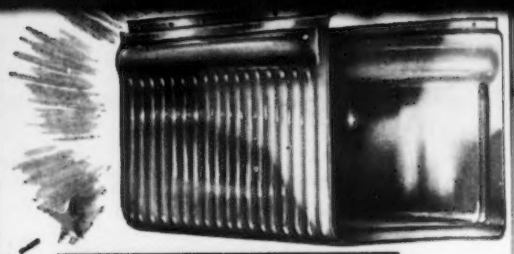

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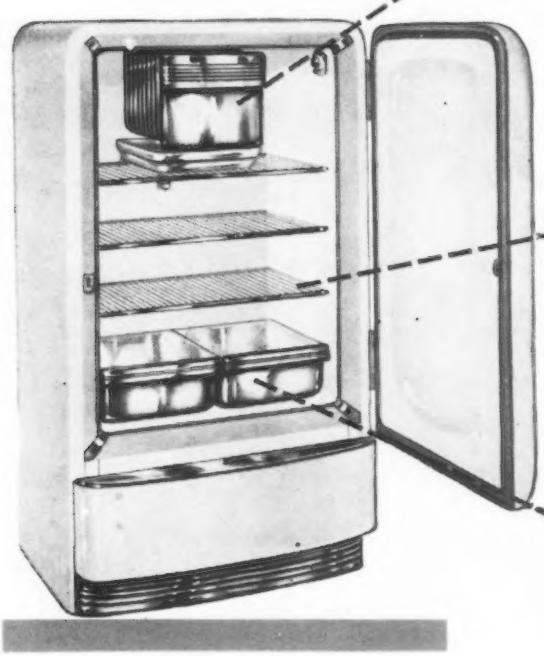

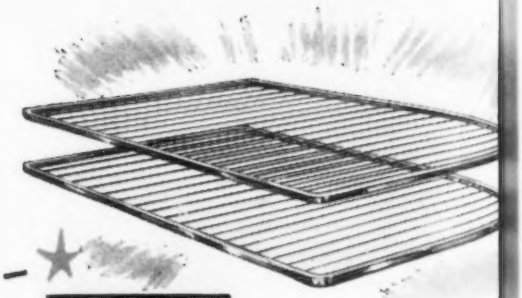

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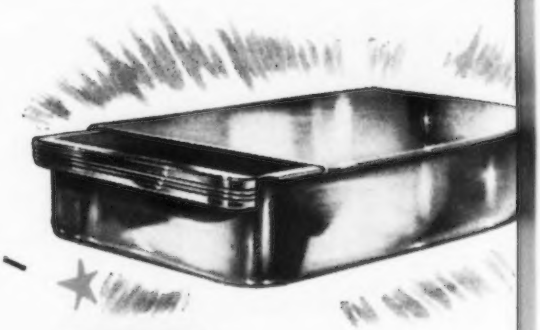

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# Scientific Socialism

AN unidentified scholar in commenting on the limitations of learning noted that mathematics was not a perfect science and that this set up an entire chain of deficiencies in other fields dependent directly or indirectly upon the complete validity of mathematics as a science. He pointed out that physics depends upon mathematics, chemistry upon physics, biology upon chemistry, psychology on biology, that at the end of the chain we find sociology, politics and economics.

This may shock many earnest people who have regarded economics as a science in which causes are clearly ascertainable and trace unfailingly to definite conclusions predictable in advance. The fact is that phenomena in this field are often obscure in origin and uncertain in their effect. This means, among other things, that the zealous reformer who knows the precise causes of poverty, or unemployment, or inflation, or business fluctuations and categorically prescribes remedies is standing on the thin ice of conjecture and multiple hypotheses.

The tragic practical aspect of this misconception regarding economics is that the zealot who insists on a fancied procedure is neither able nor willing to test his formula in a laboratory or a pilot plant but must necessarily use an entire nation for his experiment.

A case in point is the coal industry of Great Britain. The Coal Board reported a loss of $93 million for 1947, the first full year of government ownership and operation. This contrasts with a profit of $61.4 million for 1946 the last year of private operation and consistent though unspectacular profits every year since 1928.

It is much too early to come to any final conclusion regarding the efficiency of a socialized coal industry. The British Coal Board in fact reports a slight profit for the first quarter of this year. Yet the advocates of nationalization entered upon this experiment with the most plausible hopes. Unified operations and central management were expected to eliminate waste and duplication. Ample capital would be available, modernization accelerated and better management hired. Since labor under socialized mining would be working for itself it would have a greater incentive for turning in a good day's work. Finally, the elimination of profits would cut the cost of coal to the consumer or increase the revenues of the state, both social gains to the credit of nationalization.

How many of these hopes are in process of realization it is difficult at the time to say. Certainly there has been no cut in the cost of production. Labor instead of working harder protested because its own government asked it to step up production. In the face of a desperately urgent need for coal it has been difficult to meet goals.

One may also view with some skepticism the report of operations which the government submitted. If our own TVA is any guide the reported results of nationalization probably err on the optimistic side. As the years go on the pseudo-scientific reasoning of the planners is likely to encounter further disappointment.

*Joseph Stagg Lawrence*

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Accurate cutting to your order is assured by modern Ryerson equipment.

Over a Century of steel experience means more know-how applied to your steel problems.



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**REINFORCING**—bars & accessories, wire mesh, etc.
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Added Ryerson service includes a chart to guide heat treating sent with alloy shipments.

# RYERSON STEEL

**Joseph T. Ryerson & Son, Inc. Plants: New York • Boston • Philadelphia • Detroit • Cincinnati Cleveland • Pittsburgh • Buffalo • Chicago • Milwaukee • St. Louis • Los Angeles • San Francisco**

► Steel consumers will have no surcease with their headaches over steel prices. There are apt to be more individual prices with variations than at any time in history. Major companies will compete with each other at important steel consuming centers, and will match each other's quotations. But at plants where there are high production costs, the price of the steel product may be more than it sells for at other more up-to-date mills. Then there will be the smaller firms which claim that they must charge more than the bigger firms because their costs are more. All this is bound to prevail until the demand for steel is less than the supply. When that happens, prices will taper off to a common level unless a plant has enough business all to itself and is not threatened by competition from other plants.

► A simplified and rapid, yet highly accurate method, now on the market, for obtaining fatigue strength endurance limit values to serve as quality indexes, makes possible production control and material acceptance of wire on the basis of modern statistical methods. Corrosion fatigue testing and elevated and sub-zero temperature testing are additional applications.

► FTC needs more data on production by plant and by product, both at basing points and non-basing points, to complete its case against the steel industry. Heretofore, defendants have been reluctant to produce the desired information. If FTC can not reach an agreement with the defendants and has to resort to legal means to get the data, hearings will not resume before the first week in September, instead of August as planned.

► Airplane landing gear struts on some of the new high speed military planes are being made from forgings of 75ST aluminum instead of steel to get a 25 pct saving in weight. Oleo section of each aluminum landing leg, the area of wear and scoring due to landing shocks, is protected with 0.002 in. of chromium plated directly on the aluminum.

► A major change has appeared on the eastern cold-rolled strip market with virtual completion of the New Haven, Conn. plant of Reliance Steel Div. of Detroit Steel Corp. The new plant will have a monthly capacity of 5000 tons after September. Bethlehem will sell cold-rolled strip in coils produced at Sparrows Point and is expected to meet the New Haven base. Other New England producers will have difficulty in competing. So they are going into wider cold-rolled strip which is to be slit and marketed in the smaller widths.

► Process for electroplating tungsten alloys which is being developed in an eastern laboratory has given deposits having hardnesses to 1800 Vickers after heat treatment. Prime advantage of the plated alloys is that hardness is retained to almost 1400°F. Eventual applications are expected to be in the production of dies, bearings, pistons and cylinders, and possibly high speed cutting tools.

► The steel wage increase lands just a little harder on the nonintegrated producer who already had been paying about $4 per week over the average wage for integrated plants. His payroll increase will now average about 2¢ per hr more than Big Steel's. This, on top of higher incoming material costs, further widens the price spread between the 2 types of mills.

► A hydraulic press that utilizes accumulators in the hydraulic system has resulted in remarkable approach and opening speeds and also pressure speeds. Approach speeds are of the order of 3000 ipm, while pressure speeds are about 600 ipm.

► The f.o.b. mill switch has given another shot in the arm to the oft discussed plans for a Pittsburgh rail-water terminal to boost barge shipments. Under competitive conditions it would widen the markets of Pittsburgh mills. If it were in existence today, it would cut steel costs to a big segment of steel users.

► The Fagersta Steel Works in Sweden are building a new plant which is expected to be completed early next year. Added melting facilities will raise the company's annual ingot capacity to approximately 115,000 tons.

► The steel industry is in tiptop shape to support any defense program here--or even to take over the job of rearming Europe. As far as providing the steel which is the prime function of the industry, output is sufficient to support any demand from manufacturing companies making defense items. If defense requirements are stepped up considerably, however, civilian needs will be curtailed accordingly.

A Primer On

# Steel Conversion

By D. I. BROWN
*Chicago Regional Editor*
*THE IRON AGE*

***The growth of steel conversion arrangements has thrust many unsuspecting steel users into the highly technical field of rolling techniques, occasionally with ludicrous or disastrous results. Much misunderstood, these conversion arrangements have made available substantial steel tonnages which would otherwise not have been obtainable. This article explains, for the first time, the how and where of conversion arrangements and highlights some of the complex technical problems over which many steel users have stumbled in attempting such arrangements. Only the practical details of conversion from ingots or slabs to sheet or strip are presented here. Conversion arrangements starting with coal or pig iron or scrap are not discussed, nor is pure trading of products or raw materials in order to facilitate conversion deals.***

OBTAINING steel supplies through conversion is a very complicated business. Unfortunately consumers attempting to so arrange for steel are in many cases totally unaware of the requirements that must be met. One large converter last month received a telephone call from Texas asking if it couldn't convert a substantial tonnage of steel rails into plates! This instance is not typical of the entire market, but such absurd approaches to the problem are frequently made by the uninitiated.

The popular term *conversion* is rather loosely used to cover a number of operations. Conversion is not new and each conversion operation is precise. The ordinary sequence of steel mill operations has always embraced three distinct phases of conversion.

**(1) Roll ingots into semifinished product. Slabs, blooms, billets.**
**(2) Roll semifinished into finished hot rolled products. Coils or bands, sheets, bars, sheet bar.**
**(3) Conversion of finished hot rolled product into finished end product ready for use. Cold rolled sheets and strip, hot rolled pickled and oiled sheets and strip, cold drawn bars, heat treated bars, etc.**

Conversion as referred to today is new in that consumers of metals have entered the picture affecting the conversion sequence, so that the producing mills are not entirely in control of the program. Customer conversion can embrace any one or all of the three usual steps depending on circumstances.

Just because a metal consumer finds he can buy ingots does not necessarily mean those ingots can be used to make the end product he wants. The chemistry, type of deoxidation, ingot dimensions and weight, precise quality and surface, all enter into the ingot's ability to make a satisfactory end product. Each mill doing converting has somewhat different limitations on the kind of ingots that can be handled. These same general limitations also hold true for slabs, blooms, billets and sheet bar. To some extent

consumers who have been beating the bushes to obtain semi-finished for further conversion are starting at the wrong end. An important prerequisite, of course, is that the semifinished be obtainable to ship to the converter, but it is even more important to start with the end product and work backwards so that a usable ingot or slab is first obtained which will satisfactorily meet all the requirements of the end product.

The conception that all steels are the same except for chemistry is entirely false. Carbon steels can be produced of a chemistry within the limits of any given grade and still have characteristics which are not at all similar. Most consumers receiving conversion tonnage are established customers of the various mills. These consumers already are on the books for allocated tonnages through the regular channels. The converters have for the most part done everything possible to make certain that conversion tonnage does not get into the gray market. They ship only finished steel to companies they are convinced will use the steel and not resell it. Conversion tonnages to the larger consumers are generally termed "X quota" by the trade as it represents incoming steel over and above their allocated tonnages.

Conversion is not a cheap process. The consumer assumes the entire risk on quality, breakage, scrap and shipping promises so that anything done beforehand to alleviate the ordinary compromises that must be made, means a better product at the least possible cost. It is useless to offer 19x22 in. electric furnace low carbon rimmed ingots weighing 7000 lb to a converter if the end product wanted is line pipe plate 90 in. wide, ¼ in. thick by 200 in. long. The principal facts which make such an operation impossible are: (1) Line pipe requires higher strengths and therefore higher chemistries of both carbon and manganese than is available in low carbon ribbed steel. (2) It is not possible to obtain a plate 90 in. wide from an ingot where the widest diameter is 22 in., etc. This would be an extreme error, but in between this extreme and the norm lies a host of technicalities that should all be settled before the original ingots are melted. This is true whether the converter is going to receive slabs or ingots, or blooms or billets, because it is not possible to change the chemistry or make rimmed steel into semikilled steel by simply running it through a rolling mill. Quality, type and chemistry is established in melting and pouring of the ingots. The consumer who finds a bonanza of 7x7 forging quality blooms, but who wants it converted into cold rolled strip had better just forget about it.

Fundamentally, there are a few basic rules for the manufactured products that apply in all cases in the steel industry. It has been apparent for some time that some steel consumers are not at all acquainted with the fundamentals. Ingots can be directly rolled into slabs, billets, and blooms. If the end product wanted is a strip or sheet or plate, the ingot must first be converted into some type of slab. Wide flat rolled products require wide slabs, wide slabs are easiest made from wide ingots and all dimensions and weights are critical. In some cases narrow flat rolled products can be made from wide slabs or ingots, but somewhere in the process the consumer is going to have to arrange for slitting the wide flat rolled into narrow strip widths.

Because the biggest demand is for sheets this product will be fully discussed, bearing in mind that the conversion of other products is no less complicated or critical. The most popular single type of chemistry used in sheet steel is 0.09 C, 0.25 to 0.50 Mn. The AISI manual on sheet and strip steel permits 0.04 max P and 0.05 max S. The mills usually aim for and supply under 0.02 P and under 0.035 S. Recently some mills have had difficulty in supplying steel to the former low sulfur content. They report they are in cases having difficulty keeping the sulfur under 0.05. Residual or tramp alloys are limited in standard AISI specifications but in conversion the limitations are somewhat different. The biggest converter recommends that the total chrome, nickel and moly residuals be limited to 0.20 max and copper also be held to 0.20 max. With every spare openhearth, electric furnace and pot in the country pressed into conversion melting, the residual problem often limits the use of an ingot from certain melting shops.

One converter was approached to roll ingots which contained up to 1.00 pct S. Another reported a consumer had tried to supply ingots wherein the chromium ran from 0.50 to 2.00 pct. Carbon steel sheets must be ductile as they are bent, drawn, formed and rolled into a variety of shapes. It is apparent in some cases that con-

*"First, middle and last ingot from Super Steel Works."*


*"Flight 27 reports Pittsburgh and Chicago closed in and requests clearance to drop ingots into Gary harbor."*

sumers in their frantic search for semifinished have momentarily forgotten these facts. Good surface is often critical. The physical properties needed are in cases precise and any stray element effecting any one or all of these requirements often cannot be tolerated.

In the common chemistry cited for sheets the deoxidation practice generally used is a rimming practice. Very little low carbon fully killed, nonaging steel has moved through conversion channels as this grade is a highly specialized type. Many electric furnace shops melting rimmed steel for conversion never before made such steels. A good rimmed steel requires the proper carbon, FeO and sulfur content, proper pouring temperature and judicious amounts of shot aluminum to produce an active rimming ingot. Too high a carbon or too hot a heat will often cause a heat to grow in the mold or rim sluggishly which produces a poor ingot skin and hence subsequent poor surface on the product. The low carbon ductile skin produced by rim action should be free from scabs, cracks and porosity, and these are prerequisites for a good end product. Mold preparation and availability of proper types and size of molds are important. It is little wonder that such ingots now being produced in the shops of tool steel makers, alloy makers, foundries and even acid openhearth forging shops do not always come up to the quality specifications even in commercial quality sheets.

This quality is the most popular in sheet steel application. Commercial quality as defined by the AISI standard manuals and current conversion practice is not one and the same. Even the best arranged conversion deals involve compromises of one kind or another somewhere along the line. This hasn't meant that commercial quality conversion sheets are not used in applications formerly employing sheets where commercial quality was in cases an exacting specification. What has happened is that everyone has relaxed their requirements in order to use the conversion material. The percent breakage in fabrication is no longer so important. Variances in sheet size and all other tolerances are very often waived.

As long as the manufacturer can somehow, by any method, get the sheets to make the parts, they are usually acceptable to all concerned. Converters and consumers are constantly trying to do the best possible job but the natural limitations of the many variables encountered in conversion has meant that bars on the acceptability of the product have been lowered. The trade has learned that on occasion their former requirements were somewhat too rigid. It appears that in the future steel specifications for certain applications can be made somewhat less stringent.

Provided that the proper type of chemistry and quality is available in the right ingot size and that the consumer meets the full approval of the converter, the order is taken on and the fun really starts. The converter is in the middle. After the ingot maker ships ingots his worries are over unless the heat is rejected on chemistry. The consumer assumes the entire risk involved in all aspects of all conversion deals, but on the converter rests the responsibility of seeing that the right type of semi-finished comes in and the proper size, quality and quantity of sheets or bands go out. The converter takes the outside cold ingots and schedules them on the blooming mill along with ingots of his own manufacture. In usual mill practice ingots are charged into the pits well above 1200°F. Conversion ingots are all charged cold so that heating times on these ingots are about double the ordinary cycle. At this particular spot the trade has encountered one of the first ceilings imposed on the amount of conversion tonnage that can be handled. There are very few blooming mills in the country that cannot keep far ahead of the hot steel available out of the soaking pits. Conversion mills therefore cannot schedule more tonnage than their soaking pits can heat and supply to the blooming mill. Some converters told THE IRON AGE that big end up ingots give trouble. They prefer the flat bottom ingots produced in big end down molds. Rounded bottoms of some of the conventional big end up ingots are particularly troublesome if the converter has the circular type of soaking pits. Very often outside ingots plus home ingots are charged into the same pit. Every effort is made by the converter to keep the steel separate as it progresses through the mill. Sometimes, code numbers of incoming foreign ingots must be substituted for the heat number originally given the ingot in the outside shop, as converters have found that their own heat numbers and those of other manufacturers often overlap.

Ordinarily 20 to 40 ingots are cast from one heat of openhearth steel. Electric furnace heats

are smaller and often produce only four to eight ingots to a heat. One converter recently received one ingot as the total heat from one small electric furnace shop. Paper work, therefore, in scheduling and keeping track of outside steel has been a difficult task. A steel mill provider for a conversion participating mill therefore experiences many unusual difficulties. At some mills every effort is made not to mix outside steel with home steel, but at times this is intentionally done so as to fill certain orders. If, for a number of reasons, a slab order for a customer is being filled using conversion steel and all the necessary tonnage is not available when the mill is rolling that particular size, home steel ingots are at times slabbed against this order. Later, conversion steel is applied to make up the deficit on the regular order. This is done only in emergencies and only when the mill is certain that the quality of the outside steel is equal in every respect to what the mill would ordinarily melt and supply in steel of its own manufacture.

Other conversion programs are identically opposite. One of the largest and oldest going conversion deals on slabs involves the purchase of tinplate slabs by a consumer who actually needs auto body, fender or top steel. These slabs are shipped to three large mills who make tinplate. These converters credit the auto company with the received tonnage of tinplate slabs and roll and sell it to their regular tinplate customers. In return, the converters melt, roll and ship the same amount of yield tons, as obtained from the tinplate slabs, to the consumer but this steel is low carbon auto body or fender stock steel. Here the consumer never gets one pound of the original slabs purchased by him. These two methods are termed, respectively, direct conversion or indirect conversion as the case may be. Lately the larger mills are swinging more to direct conversion, where the consumer receives the finished product made from the semis he actually purchased.

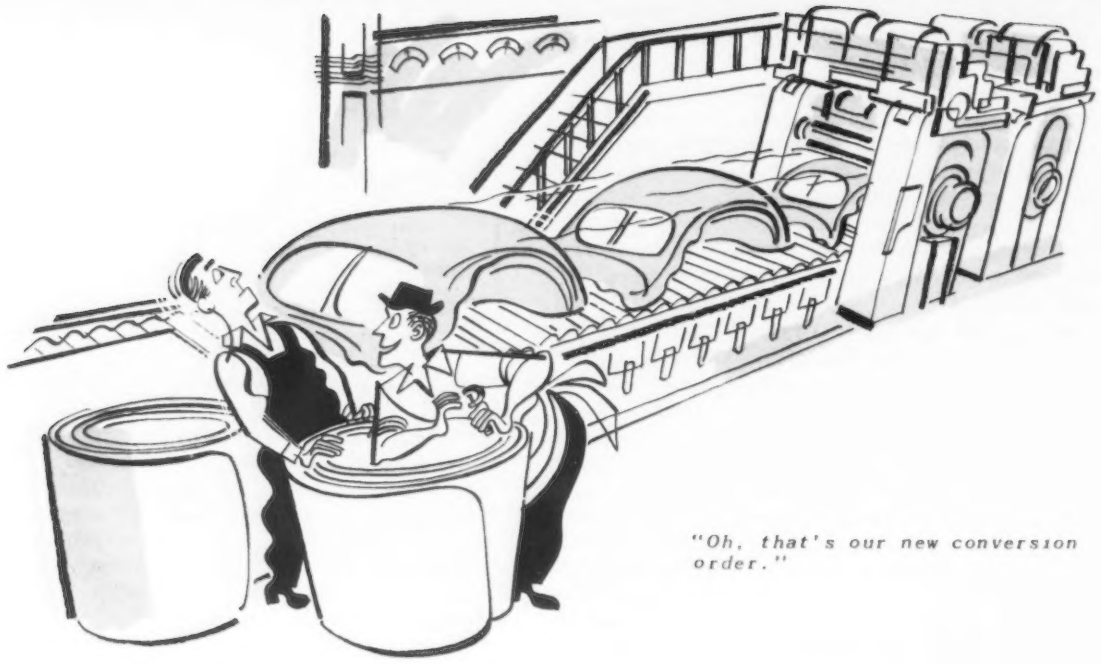
Without the very complicated but very efficient production planning department procedures developed during the past decade it would have been impossible for mills to produce the conversion tonnages that have been made in this country in the past 2 years. When attempting to operate at capacity, rolling schedules must be set up 30 to 60 days in advance and all incoming semifinished must be dovetailed into the entire rolling operation. Open space on rolling mills, however, has the annoying habit of cropping up at unexpected times. In these cases conversion tonnages are arranged on the spur of the moment depending on who can promise and actually get the semis to the mill involved in time to take advantage of the open space.

Some converters told THE IRON AGE that in cases certain ingot suppliers, who have oversold themselves, have fallen behind on delivery of semifinished—this applies to slabs as well. Where the semifinished is not available or on hand at the time the rolling schedule is to begin, the mills may have to skip the order entirely and attempt to pick it up the next time the mills are scheduled for that particular size. On some mills certain sizes are only scheduled once every month. Here again the customer assumes the risk of delivery. For this reason some steel con-

**Common Ingot, Slab and Coil Sizes and Weights Used in Sheet and Strip Conversion**

| | Dimensions (in.) | Weights |
|---|---|---|
| Ingots | 22 to 26x42 to 48x68 to 72 in. high | 16,000-18,000 lb |
| Slabs | 26 to 34 wide, 2½ to 5 thick, lengths vary widely | 3500 lb min |
| Coils (HR Bands) | 40 to 60 wide, 18 gage and heavier | 7000 lb min* |

* Heavy coil weights sometimes obtained by spot welding lighter weight bands together before rolling on cold reduction mills.



*"Oh, that's our new conversion order."*

sumers have added substantial staffs of expeditors and traffic men whose duty it is to see that the right amount and kind of steel is delivered to the proper mill so that all rolling and processing schedules which may have been laid out a month or two in advance can be met.

On the converter rests the job of converting the ingots on the blooming mill into the proper width, length and thickness of slab. These dimensions are governed primarily by what the converter can handle on the continuous hot mill and what finished size of strip or sheet the consumer has ordered. In some cases the width of the original ingots limits the available width of slab. Most converters take a 4 in. reduction on the edge of a slab to guarantee a good edge in later operations. In other words the widest possible good slab obtainable from an ingot 42 in. wide, is 38 in. Smaller width slabs are possible within the limits of the length of the runout table, the maximum slab thickness the hot continuous mill can handle, and how much time the converter wants to spend on the bloomer on each single ingot. The extent to which mills can cross roll on the roughing train of the various hot continuous mills varies. If cross rolling can be done, the bloomer can supply a narrower slab and the sheet width can be set by cross rolling later, provided the length of the slab will clear the housing of the cross rolling stand.

Here again the limitations are exact and vary with different mills. Slab thicknesses run from 2½ to 6½ in. thick depending on the rolling mill. The original width versus the cross rolled width of slabs therefore defies precise industry-wide correlation. One mill reported their small slab, 4½x27 in., could be cross rolled to a maximum width of 33 in. A 5x42 in. slab, one mill said, could be cross rolled to 51 in. maximum while a 6x42 in. slab would produce a 56 in. maximum width. Another mill using a 6x41 in. slab can reach 65 in. maximum width. Generally slab thicknesses, additional widths and weights, are such that a 25 pct increase in width is the maximum obtainable in cross rolling.

In cross rolling to get proper width a certain minimum thickness of slab must be maintained. The finishing train of rolling stands on the hot mill require progressive drafts as each stand must do a certain amount of reduction and hold a certain critical tension on the hot band while it goes through the mill. (Reduction in the hot continuous mill finishing train does not change the width.) The hot mill only rolls to gage, the length of the band depends on the weight of the slab coming out of the slab heating furnace and therefore coil weights vary directly with slab weights.

As the hot rolled coils are usually supplied 16 gage and heavier, the consumer must take them elsewhere for cold reduction. The different cold reducing mills around the country vary in the weight and size of the coil they like to handle, or can handle. A minimum coil weight of 7000 lb is generally required by the cold reduction mills. Some of the larger hot mills have recently installed large size coilers capable of making 15,000 lb coils. One large cold reduction mill has recently tooled up to handle coils weighing 30,000 lb. (See THE IRON AGE, June 10, p. 86.) The popular width of hot rolled bands moving through the conversion process is 40 to 60 in. in width.

If the consumer and the converter cannot arrange, given the ingots or slabs available, to roll exactly to the width required, somebody has to slit. This operation is usually done somewhere else. The converter can in cases roll hot band widths to multiples of the desired end width, which eliminates waste in the later slitting operation. When this cannot be done excessive scrap is generated in the consumer's fabricating

process. If the product must have a rolled edge, then slitting is out of the question—the hot rolled band must be rolled to a dead width. If the band coming off the hot mill is to go into hot rolled sheets directly, the flying shear will cut the right length and the sheets are stacked up at the end of the mill and are later re-squared, leveled or possibly pickled and oiled as the case may be.

Here is where physical limitations of each mill again enter the picture. The only reason certain mills can accept conversion tonnage is because the rolling capacity exceeds melting or slabing capacity. A mill might have open space on any one of many rolling mills depending on that mill's particular product mix. Most large converting mills have all their leveling, pickling and oiling and such facilities booked to capacity on their own products. Therefore, the consumer still gets a semifinished product from the original converter either as hot bands or hot rolled sheets. From there the material must be taken elsewhere for cold rolling, pickling, shearing, etc.

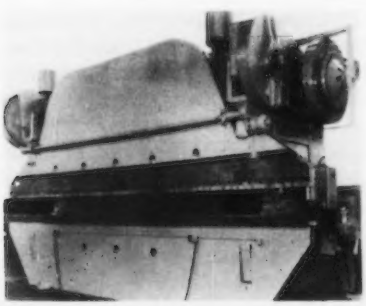
The rolling of conversion and regular steel tonnages is scheduled together. The conversion tonnage gets the same attention by the converting mill in the cases of metallurgical control and standard tolerances. However, the quality of the surface of the two types of product varies where direct conversion is being done. Usually a converter will ship as much finished tonnage as it is possible to roll from a given amount of semifinished. The converter often, however, has no control over defects which appear on the hot rolled bands as these defects originate in the ingot or the slab. Slabs furnished to most converting mills must be conditioned by the slab supplier. Again everything is at the consumer's risk. If the slabs are improperly scarfed or shipped it will show up in the end product and it's the consumer's baby. If a poor heat of ingots is received and excess croppage taken at the blooming mill, the consumer receives less than ordinary yield from the semifinished tonnage he supplied the converter. Slabs received which are full of cracks or seams or slivers, produce a like kind of bands or sheets or plates and usually the consumer must take the product. When possible the converter will make every effort to minimize defects, but the irregularities of the product supplied him are not controllable or rectifiable to any great extent.

Scrap generated during conversion is the consumer's loss. Converting mills keep it and charge it back into their own melting furnace. Much of this scrap contains more alloy residuals than the converter usually experiences. This is one of the principal reasons that for the past few years residual or tramp alloys in carbon steel have been creeping steadily up even in the producing mills which ordinarily had no residual problem. On the average, given normal quality, the yields from semifinished to end product as cited by one converter are as follows:

| END PRODUCT | SEMIFINISHED | |
|---|---|---|
| | Ingots | Slabs |
| Yield on HR sheets, HR bands or HR plates | 70 pct | 85 pct |
| Yield on HR bars and HR structurals | 75 pct | 90 pct |

Claims entered by conversion customers usually defy settlement. In the first place, many of the reasons for rejections cannot be traced to the source. Perhaps an ingot or slab was defective, maybe the ingots were good but the first converter burned the ingots in the soaking pit or rolled the band at too low a temperature on the continuous hot strip mill. Sometimes converters have inadvertently supplied the wrong width or gage off the hot continuous mills, but these cases, according to the trade are rare. The uncoiling and leveling operations as performed by smaller mills and warehouses are seldom identical to those done by large steel producers. Consumers say the big mills furnish a much better product from the standpoint of tolerance, surface and workability. Pickling as done by independents is not as well controlled as nor as uniform as that done on the large continuous pickling lines of the steel producers. With as many as four or five individual companies handling a heat of steel, from ingot to final product, such as cold rolled pickled and oiled sheets, the responsibility of a defective product is very seldom nailed down.

Conversion has accomplished a few important milestones in the industry. More finished steel has been made available than could have been produced had not certain mills elected to take full advantage of all available rolling time on all available facilities. Consumers and producers are now much more cognizant than heretofore of each other's needs, equipment, problems and limitations. Producers are much more familiar with their competitors' practices and products. Conversion has in some instances proved that certain former customer specifications were too exacting and can in cases be relaxed without affecting the utility of the product. An odd twist has been that one manufacturing company, which started in business with absolutely no steel suppliers, has for two years existed solely on conversion tonnages. Today this company is helping some steel producers out of tight spots.



Designed for shipyard use, this press brake, built by Cincinnati Shaper Co., is believed to be the largest two housing, mechanical press brake ever built. It has a clear span between housings of 21½ ft and an overall die surface of 30 ft. The gap in the housings is 24 in. Plates 30 ft long and up to ¾ in. long can be bent over an 8-in. die opening and heavier plates of shorter lengths can be bent. It can also be used for multiple or gang punching. The weight of the brake is about 150 tons.

# Effects of Hydrogen in the Corrosion of Steel

EMBRITTLEMENT and blister defects in steel tanks, pipes and other pressure vessels can be traced to hydrogen generated by corrosion reactions according to a paper by M. H. Bartz and C. E. Rawlins of the Phillips Petroleum Co., Bartlesville, Okla., given before the annual conference of the National Association of Corrosion Engineers held at St. Louis.

The problem has become increasingly serious in the petroleum industry, according to the report, where more sour or high sulfur crudes, gases, gasoline, and hydrocarbons are being handled than ever before. Hydrogen has been the cause of the blistering and hydrogen sulfide, which reacts with the metal to liberate free hydrogen, has been established as the source of the trouble.

Present estimates place industry wide refinery equipment losses due to all types of corrosion at about 1¢ per gal of gasoline produced, and as the use of West Texas crudes increases, the problem is expected to become even more critical.

The paper states that this type of corrosion starts long before there is any loss of metal or weight and that the hydrogen released by the hydrogen sulfide-iron reaction is responsible for the embrittlement of hardened steel parts and the blistering of unhardened parts. Blisters less than ⅛-in. diam to as large as 12x24 in. have been reported and the defects have been found to appear both on the interior and exterior surfaces of the pipes, tanks and vessels. No blisters have been found in equipment handling sweet crudes or gas, products which do not contain hydrogen sulfide, and only one case of blisters in line pipe has been uncovered. The equipment examined for this corrosive action has been operated only at normal outdoor temperatures.

This type of corrosion in the case of one vessel cut up and tested showed that the hoop stress in shell fibers calculated from the bursting pressure was equivalent to a metal loss of 22 pct of the steel thickness. Yet, the shell had not diminished in thickness nor did it show any outward signs of corrosion other than the blistered surface. The composition of the gas contained in blisters was reported. Samples taken from one defect in the wall of a sphere operating at 135 psi on sour natural gas service showed, in volume percents: $H_2$, 99.5 ± 0.5; $CO_2$ 0.05 ± 0.02; CO, 0.05 ± 0.02; air, 0.03 ± 0.10; and water vapor, trace.

The pressure inside this particular blister was found to be 140 psi. Five other blisters in refinery vessels were tapped and the pressures were found to be 1000, 1700, 1700, 2500 and 2500 psi. Blisters ranged from 3x4 in. to 4x6 in. in size for these vessels and occurred 1 in. under the surface of a 1⅝-in. thick plate. The maximum pressure the vessels had been subjected to in service was 270 psi, and to 405 psi when initially tested prior to installation.

Cracks are not found in blister free material, according to the paper, and recognition of this has led to an attempt to correlate the two defects. Some evidence indicates that atomic hydrogen causes steel to crack while molecular hydrogen is apparently responsible for blister formation.

Agents known as promoters have been found to increase the amount of hydrogen which will penetrate steel during acid pickling and the effects of these elements—sulfur, arsenic, selenium, tellurium, antimony and phosphorous—in promoting blisters is being investigated. It appears that any reaction releasing atomic hydrogen at the metal surface can cause blisters and, in particular, high temperatures, moisture or the release of nascent hydrogen by corrosion, pickling or electrolysis are considered the primary causes of blister formation. Oxygen or water must be present in order for hydrogen sulfide corrosion to take place and the reaction is accelerated in proportion to the amounts of water and oxygen present.

In discussing the mechanism by which the defect is produced, the report suggests that hydrogen atoms penetrate the metal and, having entered, form molecular hydrogen to exert a pressure stronger than the yield strength of the metal at that particular spot. Inclusions, laminations, heavily segregated phosphorous areas, or minute voids permit enough pressure to accumulate to cause the metal to swell, puff or otherwise blister. Occluded hydrogen may also be present as a result of steelmaking practice, pickling or other causes, and this hydrogen either with or without additional gas generated by corrosion can cause blister defects.

A change in steel specifications has been suggested by Phillips engineers as a possible aid in combatting the corrosion problem. Specifications for steel to be used in handling sour materials should, according to the report, call for the cleanest commercial steel as free as possible from laminations. If fully killed types are specified, comparatively homogeneous steels such as ASTM 201 or A212 should be obtained rather than semi-killed or rimmed steels such as ASTM standard A285 (A70 — A90), A283 (A10 — A78) or A30. Specifying firebox quality rather than flange quality is also suggested to help decrease the degree of lamination and prevent some types of blistering.

# Comparative Tool Steel Brands

***The accompanying table of comparative tool steels lists comparable trade names of tool steels of 16 producers. The classifications used in this listing are the new ASM classifications, with the exception of the carbon tool steel grade. While the listing is believed to be accurate, the editors will appreciate being advised of any errors or omissions in order that future editions of this chart may be corrected.***

## CARBON TOOL STEELS

| | Best Grade Special | Extra | Regular | Carbon TS Not Subj. to Tests | 1st Quality C. Drill Rod | Commercial Drill Rod | |
|---|---|---|---|---|---|---|---|
| Allegheny Ludlum | Pompton Special | Pompton Extra | Pompton | Corinth | Pompton D.R. | Commercial Drill Rod | |
| Bethlehem | XXX | XX | XCL-X | | | | |
| Braeburn | Special | Extra | Standard | | | | |
| Carpenter | Special | Extra | Comet | | Green Label Drill Rod | | |
| Columbia | Special | Extra | Standard | Electrex | | | |
| Crucible | Sanderson or Crescent Special | Sanderson or Crescent Extra | Sanderson or Crescent | Black Diamond | Sanderson Spec. D.R. | | |
| Disston | Best | Extra | Standard | | | | |
| Firth-Sterling | Special | Extra | Sterling | | Globe D.R. | Sterling D.R. | |
| Halcomb | Special | Extra Warranted | Standard | | | | |
| Jessop | Washington | Lion Extra | Chippaway Lion | | Ranger D.R. | | |
| Lathrobe | Special | Extra | Standard | | Extra D.R. | | |
| Midvale | Special | Extra | Regular | | Grade X | | |
| Simonds | Red Label | Blue Label | Diamond S | | | | |
| Universal-Cyclops | Special | Extra | Standard | | Carbon Drill Rod | | |
| Vanadium-Alloys | No. 14 Special | Red Star Die | Latrobe | | D.R. Blue Anchor | Red Anchor D.R. | |
| | Vulcan Sp. | Extra | Fort Pitt | | | | |

## NONDEFORMING DIE STEELS

| ASM Classification → | II A-1 | II A-2 | II A-3 | II B-1 | II B-2 | II C | II D-2 | II D-3 |
|---|---|---|---|---|---|---|---|---|
| Alloy Classification → | Low Mn, Cr-W Oil Hardening | High Mn Oil Hardening | Low W Oil Hardening | Mn Air Hardening | 5% Cr Air Hardening | High C—High Cr Oil Hardening | 1.50 C, HiC-HiCr | 2.15 C, HiC-HiCr, Air H |
| Allegheny Ludlum | Saratoga | Deward | Utica | Airloy | Sagamore | Huron | Ontario | |
| Bethlehem | Tool Room | | No. 67 | Bethlehem Air Hardening | 5% Cr Air Hardening | Lehigh S Temper | Lehigh H. Temper | |
| Braeburn | Kiski | S.O.D. | Keystone | | Airque | Superior 1 | Superior 3 | |
| Carpenter | | Stentor | | Vega | No. 484 | Hampden | No. 610 | |
| Columbia | Exl-Die | | Tap-Die | | | Superdie | Atmodie | |
| Crucible | Ketos | Paragon | Champion Die | | Airkool | Old HYCC | Airdie 150 | HYCC |
| Disston | Mansil | | Serni High Speed | | | 812 Die Steel | Croloy | |
| Firth-Sterling | Invaro | | Meteor | | Airvan | Triple Die | Chromovan | |
| Halcomb | Ketos | | Liberty | | | Marathon | Haldi No. 2 | |
| Jessop | Truform | Special Oil Hardening | | | Windsor | 3C | CNS | |
| Latrobe | Badger | Mangano | | | Select B | GSN | Olympic | |
| Midvale | Constant | | | | | Diamond A | Diamond | |
| Simonds | Simonds | Teenax | Simonds O.H.D. | | | | Simonds No. 12150 | |
| Universal-Cyclops | Wando | | Para | | Sparta | Ultradie No. 2 | Ultradie No. 2 | |
| Vanadium-Alloys | Non-Shrinkable Colonial No. 6 | | Red Star Tungsten | | Air Hard | Crocar | Ohio Die | |
| Vulcan | Vulcan Oil Hardening | Non-Shrinkable | Hardrite | Vairloy | | Hi-Pro | Alidie | |

## SHOCK RESISTING STEELS

| ASM Classification → | III-A | III-B | III-C | III-D | III-E | | |
|---|---|---|---|---|---|---|---|
| Alloy Classification → | Cr.-V | Low Si-Mn | High Si-Mn | W | W-Si | C-V | |
| Allegheny Ludlum | Caroga | | 602, 609 | Seminole Med. | Seminole Hard | Python | |
| Bethlehem | Bethlehem Tough S or M | | No. 71 Omega | No. 67 | | Beth. Best | |
| Braeburn | Chrome Vanadium | Triton R.B. Chisel | | Vibro | | Special | |
| Carpenter | | Solar | S-M | Excello | | No. 11 V | |
| Columbia | | | | Buster | | Vanadium Extra | |
| Crucible | Pyro | | LaBelle 2-70 | Atha Pneu | | Alva Special | |
| Disston | | | D-29 | Keystone Alloy Chisel | | | |
| Firth-Sterling | | | Chimo | J-S | | | |
| Halcomb | | | Krosil | Halcut | | | |
| Jessop | 89 MC | | Magic | | Top Notch | Carbon Van 25 | |
| Latrobe | Crown | Gordon | Lanark | XL Chisel | | Renown | |
| Midvale | | Duredge Chisel | Multole Punch | | | | |
| Simonds | | | | | | | |
| Universal-Cyclops | Orion | Venango | | Alco | | Draco | |
| Vanadium-Alloys | Vasco Vanadium | | Silman | Par Exc. | | Colonial No. 7 Colhed | |
| Vulcan | Hecla | | 4870 | Vulcan Q.A. | | Vulcan Spec. Van. | |

## HOT WORK STEELS

| ASM Classification → | IV A-1 | IV A-2 | IV-B | IV-B-2 | IV F-1 | IV F-2 | IV F-3 | IV F-4 |
|---|---|---|---|---|---|---|---|---|
| Alloy Classification → | Lower C, 4% Cr | Higher C, 4% Cr | 5% Cr, No. W | 5% Cr, 1% W | 9% W | 12% W | 15% W | 18% W |
| Allegheny Ludlum | EB Alloy | | Potomac M | Potomac | Atlas A | Atlas B | Mohawk | LXX—5T |
| Bethlehem | | 445 | | | No. 57 Hot Work | | | |
| Braeburn | | Hot Die No. 2 | Pressurdie No. 3 | Pressurdie No. 2 | T-Alloy | | | Vinco Hot Work |
| Carpenter | | | No. 883 | | TK | | DYO | |
| Columbia | | Phoenix | Fire die | | | Formite | | |
| Crucible | LaBelle 89 | Crescent H. Work 2 | Nu-Die | Chromow | Peerless A | Peerless LCT No. 2 | Peerless LCT C-40 LLCTC-25 | Rex A Rex AA low C |
| Disston | | HRW | | | | | | |
| Firth-Sterling | | CYW | | HWD | LT | | XDL | XDH (C-55) XDM (C-45) |
| Halcomb | | | Halcomb 218 | | Halcomb H. Work | | | |
| Jessop | J. Hot Work Die | JJ Hot Work Die | Dica A | Dica B | 2B (LC) C-30 | 2B (HC) C-48 | 2B (MC) C-35 | |
| Latrobe | | | Dycast No. 1 | LPD | CLW | | EHW No. 1 | |
| Midvale | | Bolt Die Regular | | | Nut Piercer | Bolt Die Special | | |
| Simonds | | | | | | | | |
| Universal-Cyclops | | Ajax | Thermold A | Thermold B | | | | |
| Vanadium-Alloys | | Choice No. 1 | Hot Form No. 2 | Hot Form No. 1 | Marvel | | Forge Die C-30 | Red Cut Superior J. Temper |
| Vulcan | Vulcan No. 6 HW | Vulcan No. 4 HW | | TCM | Calo-Ferro 30 | | | |

## HIGH SPEED STEELS – MOLYBDENUM TYPES

| ASM Classification → | V A-III | V A-I | V A-II | V B-I | V B-II | V B-III | V B-IV | V B-V |
|---|---|---|---|---|---|---|---|---|
| Alloy Classification → | M-2 W-Mo | 0-8 Mo-V | 2-8 Momax | V B-I Momax 5% Co | 2-8-8 Momax | W-Mo 5% Co | W-Mo 8% Co | W-Mo over 8% |
| Allegheny Ludlum | DBL-2 | VLM | LMW | | Super LMW | | Super DBL | |
| Bethlehem | 6-6 | | Bethlehem HM | | | Bethlehem Moco | | |
| Braeburn | Braemow M-2 | | Mo Cut | | | | | Congo |
| Carpenter | Speed Star | | Star Max | | | | | |
| Columbia | Molite 5 | Molite 9 | Molite 8 | | | | | |
| Crucible | Rex M-2 | Rex VM | Rex TMO | Rex TMO-5 | | Rex MMM | | |
| Disston | 6 N 6 | | Di-Mol | | | | | |
| Firth-Sterling | Star-Mo M-2 | | Blue Chip H.M. | Super Hi-Mo | Super Mo-Chip | | | |
| Halcomb | Rex M-2 | Dreadnought VM | Rex TMO | Rex TMO-5 | | | | |
| Jessop | Mustang | Kromol | Mogul | | | Mustang Special | | |
| Latrobe | Double Six | Tatmo B Electrite TNW | Tatmo | Locomo Tatmo A | Electrite Super Como | | Electrite Cobalt 6 | |
| Midvale | Mo-Star | | Midmax | | | | | |
| Simonds | Molva T | Molva | STM | | | | | |
| Universal-Cyclops | Motung 652 | Movan | Motung | Super Motung | Super Motung Spec. | | | |
| Vanadium-Alloys | 6-6-2 Vasco M2 | Van-Lom | 8 N-2 | | | | Victory | |
| Vulcan | TM 5 | | Vul-Mo | | | | | |

## HIGH SPEED STEELS – TUNGSTEN TYPES

| ASM Classification → | V C-I | V C-II | V C-III | | V D-I | V D-II | V D-III | V D-IV |
|---|---|---|---|---|---|---|---|---|
| Alloy Classification → | 18-4-1 | 18-4-2 | 18-4-3 | 14-4-2 | 14-4-2-5 | 18-4-1-5 | 18-4-2-8 | 20-4-1-12 |
| Allegheny Ludlum | LXX | ML | | | | Panther Special | Super Panther | |
| Bethlehem | Bethlehem HS Special | HV | Red Tiger | Extra Special | | Comokut | | |
| Braeburn | Vinco | Twinvan | | Gyro | | Braeburn Cobalt | Bonded Carbide Jr. | Bonded Carbide |
| Carpenter | Star Zenith | Super Star Zenith | | | Gold Star | | | |
| Columbia | Clarite | Vanite | | | Maxite | | | |
| Crucible | Rex AA | Rex Super Van | | Rex Champion | Rex 95 | Rex AAA | Rex Super Cut | Rex 440 |
| Disston | Kutkwik | | | | | | D-6-Co | |
| Firth-Sterling | Blue Chip | Blue Chip HV | | Star Blue Chip | | | Circle C | |
| Halcomb | Dreadnaught | Super Van Dreadnaught | | | Rex 95 | | | |
| Jessop | Supremus | Supremus Extra | | | Jessco B | Purple Label | Purple Label Extra | King Cobalt |
| Latrobe | Electrite No. 1 | Electrite No. 19 | Electrite Vanadium | Electrite Uranium | Electrite U.B. | Electrite Cobalt | Electrite Super Cobalt | Electrite Ultra Cobalt |
| Midvale | Two Star | Two Star Special | | One Star | | Three Star | Four Star | Five Star |
| Simonds | Red Streak | Lockport Special | | Niagara | | Tunco | Super Cobalt | |
| Universal-Cyclops | B-6 | B-9 | | B-42 | B-8 | B-7 | B-10 | |
| Vanadium-Alloys | Red Cut Superior | EVM | | | | Red Cut Cobalt | Red Cut Cobalt B | Grey Cut Cobalt |
| Vulcan | Wolfram | Vulcan Super | | | | Wolfram Cobalt | | |

# How To Weld Clad Steels

***In concluding the discussion of how to weld clad steels, the first part of which appeared in the July 22 issue of THE IRON AGE, the author takes up the remaining types of stainless used most generally in cladding. Heat treating, types of joints, welding electrodes and overlays are outlined.***

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It is customary to weld the root pass of type 316 modified cladding material with 25-20 Mo or 25-12 Mo electrodes. Succeeding layers are welded with 19-9 Mo. When severely corrosive conditions are to be encountered or stress relief treatment is to be given, type 316 with 0.03 pct max carbon or type 316 columbium stabilized cladding material should be welded with stabilized electrodes with molybdenum.

Nickel is one of the few pure metals commonly used for cladding and it is impossible to use an electrode that will compensate for iron pickup or dilution. Under certain corrosive conditions, the iron content of the nickel weld must be held to extremely low values. However, in a majority of applications, a severe limitation on iron content is not required as the nickel-iron solid solutions are sufficiently corrosion resistant. Stringer beads from small diameter electrodes should be used. Where iron pickup is to be held to a minimum, the top half of the root bead should be chipped or ground off before succeeding layers of weld metal are deposited. The greater the number of layers of nickel weld metal, the lower the iron content will be in the top layer of weld metal. Welding details for welding nickel cladding with nickel electrodes are shown in fig. 13.

The 80 pct Ni —20 pct Cr electrode is used under certain corrosive conditions to weld nickel clad, as the chromium compensates for the iron pickup and the weld is cathodic to the nickel surface. The 80-20 alloy plus iron on nickel clad steel produces a composition similar to Inconel, 78 pct Ni —14 pct Cr —6 pct Fe. Welding details for this type of electrode are shown in fig. 14.

In welding Inconel, all weld layers should be deposited with 80 pct Ni —20 pct Cr electrodes to compensate for iron pickup or dilution.

Because of the hot short or brittle condition resulting from the formation of a copper-iron alloy sometimes encountered when a Monel electrode is deposited against steel in welding Monel cladding, the steel exposed by back chipping or grinding should be covered with nickel weld beads before the Monel weld beads are deposited. After the exposed steel has been covered, the balance of the weld can be made with Monel electrodes.

Cupro-nickel is commonly welded with a 70 pct Ni —30 pct Cu electrode using multiple layers to overcome iron pickup or dilution. Monel electrodes are used in many cases. The root pass should be made with nickel electrodes as in the case of Monel clad.

There are three common methods of welding light gage clad materials. It is recommended that 20 pct clad be specified for material up to 3/16 in. thick to provide sufficient cladding to give adequate corrosion-resistant welds. For commercial fabrication, 0.030 in. cladding thickness is suggested as a minimum.

Fig. 16A shows the most common procedure for welding light gage material. The plate is beveled about 70° on the steel side and is welded in the manner described.

Fig. 16B shows the method used where unfused areas will not be detrimental. This type of joint is often used for tanks that are thoroughly braced or stayed. The plates should be fitted together tightly and the steel side should be welded first, using a 1/8 or a 5/32 in. diam steel electrode of the E6012 or E6013 type to prevent excessive penetration. The clad side is then welded using a 1/8-in. diam alloy electrode at a rapid rate of travel.

Fig. 16C illustrates the use of a copper backing strip for welding light gage material. The groove in the backing strip is about 5/32 in.

TABLE III

Alloy Electrodes Used for Corner or T Joints for Alloy Side, or Overlays

| Cladding Type | Electrode |
|---|---|
| 405 | 25-20[1] |
| 410 | 25-20[1] |
| 430 | 25-20[1] |
| 301 | 25-20 |
| 302 | 25-20 |
| 304 | 25-20 |
| 308 | 25-20 |
| 321 | 25-20Cb |
| 347 | 25-20Cb |
| 309 | 25-20 |
| 316 | 25-20Mo |
| Nickel | Nickel |
| "L" Nickel | Nickel |
| Monel[2] | Monel |
| Inconel | 80Ni-20Cr |

[1] Chromium electrodes must be used under certain corrosive conditions.

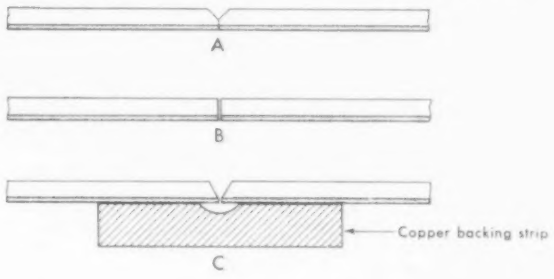
[2] Exposed steel should be "buttered" with nickel before applying Monel weld metal.

wide and 1/16 in. deep. Plates should be spaced with a 1/8-in. root gap and the joint welded throughout with a 1/8-in. diam alloy electrode.

In many structures, joints are found that require the welding of the clad material throughout its composite thickness from one side, as illustrated in fig. 17. Either of two methods may be employed.

The use of copper backing strips is suggested when adequate clearance is available, as shown in fig. 18A. When the clad surface is on the blind side, the entire cross section of the joint must be welded with alloy electrodes. Root beads (thickness of the cladding) should be completed with electrodes listed in table II, column 2. The balance of the weld should be completed with electrodes listed in table II, column 3. When the steel section is on the blind side, steel welding electrodes may be used up to within 1/16 or 1/8 in. of the clad line and the joint may then be completed with an alloy electrode of the types listed in cols 1 or 2 in table II.

Backing strips are also used in the type of joint illustrated in fig. 18B. When the clad material is on the blind side, a backing strip of the same analysis as the cladding must be used. This strip is attached to one of the plates by a fillet weld and alloy weld metal is deposited on this strip, as when using the copper backing strip. In this case, alloy weld metal must be used throughout the joint. When the clad surface is exposed, a steel backing strip suffices and steel electrodes may be deposited to within 1/16 or 1/8 in. of the cladding. The weld is completed with alloy electrodes as listed in table II, cols.




*ABOVE*

*FIG. 16 - Methods of welding light gage (3/16 in. thick) clad steel.*

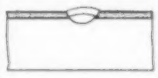
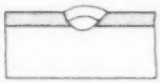
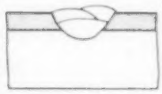
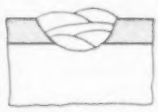
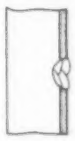
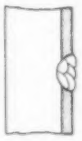
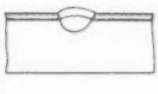
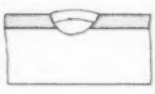
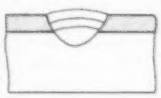
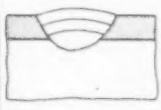
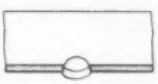
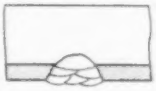
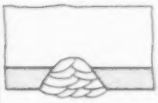
| Position | 1/4 to 1/2 incl. 10% clad | 1/4 to 1/2 incl. 20% clad<br>9/16 to 1 incl. 10% clad | 9/16 to 1 incl. 20% clad<br>1 1/8 and up 10% clad | 1 1/8 and up 20% clad |
|---|---|---|---|---|
| Flat |  |  |  |  |
| Passes | 1 2 | 1 2 | 1 2 to 3 | 1 & 2 3 to 6 |
| Elect. Diam. | 1/8 Ni 1/8 | 1/8 Ni 5/32 | 5/32 Ni 5/32 | 5/32 Ni 5/32 or 3/16 |
| Horizontal |  |  |  |  |
| Passes | 1 & 2 3 & 4 | 1 & 2 3 to 5 | 1 to 3 4 to 7 | 1 to 4 5 to 9 |
| Elect. Diam. | 1/8 Ni 5/32 | 1/8 Ni 5/32 | 1/8 Ni 5/32 | 1/8 Ni 5/32 |
| Vertical |  |  |  |  |
| Passes | 1 2 | 1 2 | 1 2 & 3 | 1 2 & 3 |
| Elect. Diam. | 1/8 Ni 1/8 | 1/8 Ni 5/32 | 5/32 Ni 5/32 | 5/32 Ni 5/32 |
| Overhead |  |  |  |  |
| Passes | 1 2 | 1 2 & 3 | 1 2 to 6 | 1 & 2 3 to 11 |
| Elect. Diam. | 1/8 Ni 1/8 | 1/8 Ni 5/32 | 5/32 Ni 5/32 | 5/32 Ni 5/32 |

*FIG. 15 - Details for welding Monel clad steel with a nickel electrode for the root layer and Monel electrodes for the balance of the weld.*

TABLE IV

Maximum Hot Working and Annealing Temperatures, °F

| Common Name | ASTM Spec. | ASTM Grade | AISI Types | [1]Maximum Hot Working Temperatures, °F | Annealing Temperature Range, °F | Annealing Rate of Cooling |
|---|---|---|---|---|---|---|
| 12 pct Cr | 263 | O | 405 | 2100[2] | 1400-1500 | 3,4 |
| 12 pct Cr | 263 | A | 410 | 2000[2] | 1450-1550 | 3 |
| 15 pct Cr | 263 | B | | 2000[2] | 1450-1550 | 3 |
| 16 pct Cr | 263 | D | 430 | 2000[2] | 1450-1550 | 3 |
| 17-7, Cr-Ni | 264 | 1 | 301 | 2100 | 2000-2150 | 4 |
| 18-8, Cr-Ni | 264 | 2 | 302 | 2100 | 1850-2050 | 4 |
| 18-8, Cr-Ni | 264 | 3 | 304 | 2100 | 1800-2000 | 4 |
| 19-9, Cr-Ni | 264 | 4 | 308 | 2100 | 1800-2000 | 4 |
| 19-9, Cr-Ni-Ti | 264 | 5 | 321 | 2100 | 1800-2000 | 4,5 |
| 19-9, Cr-Ni-Cb | 264 | 6 | 347 | 2100 | 1800-2000 | 4,5 |
| 25-12, Cr-Ni | 264 | 8 | 309 | 2100 | 2050-2150 | 4 |
| 25-20, Cr-Ni | 264 | 10 | 310 | 2100 | 2050-2150 | 4 |
| 18-12, Cr-Ni-Mo | 264 | 11 | 316 | 2100 | 1900-2150 | 4 |
| Nickel | 265 | Nickel[6] | | 2300 | 1500-1600 | 4 |
| Monel | 265 | Ni-Cu Alloy | | 2150 | 1600-1700 | 4 |
| Inconel | 265 | Ni-Cr Alloy | | 2300 | 1750-1850 | 4 |

1—Do not heat above maximum temperature of hot working range.
2—Work to below 1500°F for maximum grain refinement.
3—Furnace cool at 50° per hr to 1100°F, then air cool.
4—Air quench.
5—Can be annealed at 1500° to 1650°F for 2 hr per in. thickness.
6—Special low-carbon "L" nickel should be used if extensive hot work or annealing is required.

1 or 2.

Fig. 19 illustrates types of corner joints commonly encountered in clad steel fabrication. When facilities and design permit, corner joints should be eliminated and a formed section, as shown in fig. 19E, should be used. This construction permits a butt joint, which is more desirable from both fabrication and structural standpoints. If this type of construction is used, the straight flange section should be as high as possible so that adequate clearance is provided for manufacturing purposes. Table III indicates the proper analysis electrode to use when welding the clad side of various corner joints.

Fig. 19A shows the type of weld that can be used on unstressed or heavily supported structures. The outside should be welded with a large diameter steel electrode to dissipate and dilute the pickup of clad material. If desired, an alloy electrode may be used to weld the outside of this joint. The inside of the joint should be welded with the appropriate alloy electrode. This joint has an undesirable unfused area between the welds.

Fig. 19B shows a joint that may be welded in either of two ways. The clad side may be welded first with the appropriate alloy electrode, followed by back chipping the outside and then welding the balance of the joint with alloy electrodes. The second method is to weld the steel side throughout with steel, back chip from the inside and weld with the appropriate alloy electrode.

Figs. 19C and 19D indicate joints that should be welded throughout with alloy electrodes. After welding the clad side, the steel side should be back chipped or ground, and welded with alloy electrodes.

Figs. 20 and 21 show types of T and lap joints commonly employed in clad steel fabrication. Electrodes used in welding such joints are shown in table III.

When double V or U joints are used on heavy gage clad materials, the center line of the bevels should be offset to favor the clad side as shown in fig. 22. This will reduce the amount of alloy weld metal required.

Three methods are used for welding double

TABLE V

Stress Relief Temperature Recommendations, °F

| Common Name | AISI Types | Stress Relief Range, °F |
|---|---|---|
| 12 pct Cr[1] | 405 | 1150-1200 |
| 12 pct Cr[1] | 410 | 1150-1200 |
| 15 pct Cr[1] | | 1150-1200 |
| 16 pct Cr[1] | 430 | 1150-1200 |
| 17-7, Cr-Ni[2, 3] | 301 | 1100-1150 |
| 18-8, Cr-Ni[2, 4] | 302 | 1100-1150 |
| 18-8, Cr-Ni[2, 4] | 304 | 1100-1150 |
| 19-9, Cr-Ni[2, 4] | 308 | 1100-1150 |
| 19-9, Cr-Ni-Ti[5] | 321 | 1100-1150 |
| 19-9, Cr-Ni-Cb[5] | 347 | 1100-1150 |
| 25-12, Cr-Ni[2, 4] | 309 | 1100-1150 |
| 25-20, Cr-Ni[2, 4] | 310 | 1100-1150 |
| 18-12, Cr-Ni-Mo[6] | 316 | 1100-1150 |
| Nickel[7] | Nickel | 1150-1200 |
| Monel[7] | Monel | 1150-1200 |
| Inconel[7] | Inconel | 1150-1200 |

1—May be annealed, see table IV.
2—Because of high carbon, this material is seldom welded.
3—Because of carbide precipitation at stress relief temperature if annealed, fabricated material is seldomly heat treated unless conditions of Note 4 are met.
4—Low carbon material may be given stress relief without excessive carbide precipitation. Precipitated carbides are of no significance for soma corrosive service.
5—May be annealed at 1550° to 1650°F for stress relieving of alloy. Furnace cool at rate not exceeding 100°F per hr.
6—Type 316 with 0.03 pct carbon and 316 stabilized with Cb (not ASTM or AISI material) is available and recommended for welding and for heat treatment if molybdenum stainless is required.
7—Type "L" nickel clad, a special grade of nickel with 0.02 pct carbon max, should be used.
8—Use recommended time and temperature for steel vessels.

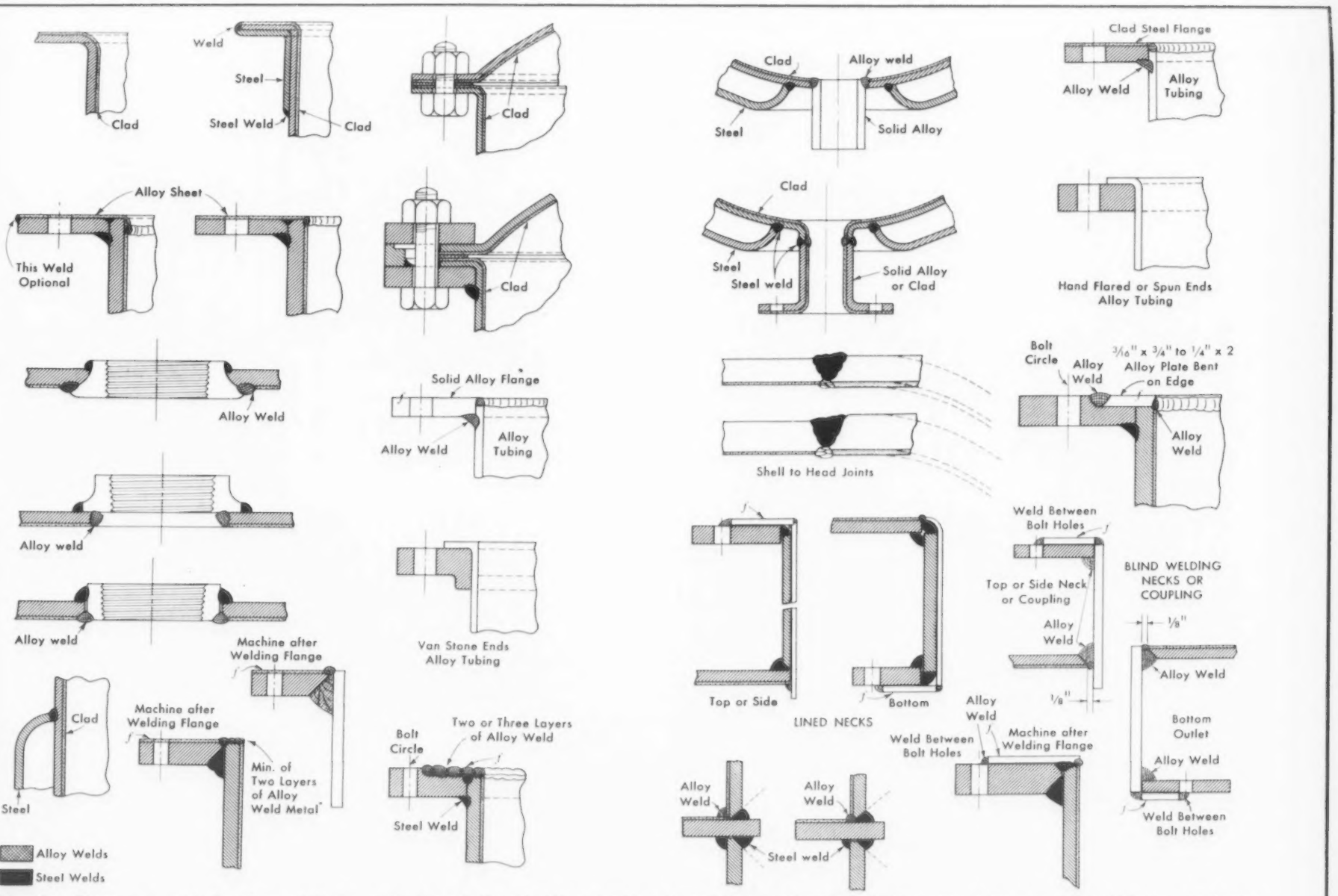



*FIG. 17 - These are methods of providing continuity of the cladding surface by welding clad material throughout the composite thickness of the material.*

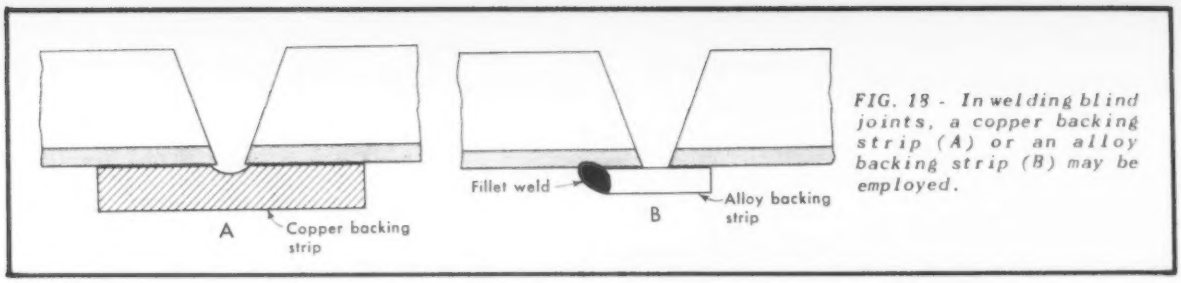



*FIG. 18 - In welding blind joints, a copper backing strip (A) or an alloy backing strip (B) may be employed.*

clad steels. The first and most commonly employed is to use the standard V or U preparation. The steel side is welded with the appropriate steel electrodes up to about 1/16 or 1/8 in. of the clad line, followed by welding with corrosion resistant electrodes. The unwelded clad surface is then back chipped and welded in the same manner as a single clad plate. electrodes to be used for this technique are shown in table II.

On heavy gage plates, a double V or U preparation can be used. The steel section may be welded with the appropriate steel electrodes up to 1/16 to1/8 in. of the clad line, and the balance of the joint can be completed with the appropriate corrosion resistant electrodes, as shown in table II.

Strips of corrosion-resistant metal are occasionally applied over welded joints on the clad side as an added protection for some specific service. The lining material should be the same as the cladding metal. The minimum lining thickness should be 0.050 in. in the interest of fitting and welding. Thickness of the strip should never be less than the thickness of cladding. Exact thickness and size depend upon design and the nature of service. For welding electrodes, refer to table II, column 1.

In applying strips up to 0.150 in. thick by arc welding, 1/8-in. diam electrodes should be used, while 5/32 in. diam electrodes may be used with thicker strips. Welding procedures should provide adequate but minimum penetration of weld metal into exposed steel or clad material. Weld metal analysis or welding procedures should be such as to compensate for any dilution. Electrodes for such welding are shown in table II.

The use of argon or helium gas-shielded arc welding has been limited to the application of strip covers over joints. This technique may be used on all clad materials except nickel, and, care must be taken to provide minimum, but adequate penetration. The weld may be made without the addition of filler metal in most cases. High purity, 99.9 pct. helium must be used on Monel clad.

In general, overlays of alloys on ferrous material cover small areas such as flanges and nozzle faces. Welding conditions must provide adequate but minimum penetration of the alloy weld metal into the steel. The first layer of alloy should be applied with a 1/8 in. diam electrode at normal amperage. Dilution is controlled by directing the arc against the back of the weld puddle. For Monel, an interlayer of nickel weld metal is recommended, particularly for applications where the Monel overlay must be free of cracks. The second and succeeding layers may be applied, using 1/8 in. or 5/32 in. diam electrodes, depending upon the area to be covered and the thickness of backing metal. Analyses of electrodes used are shown in table III.

Care must be taken in the selection of proper welding conditions to insure successful fabrication of clad steels by the submerged-arc process. This method of welding can penetrate deeply and fuse a large portion of the base metal, mixing it with the welding electrode. This fact must be given consideration in welding both steel and alloy sides of clad material.

Backing steel for submerged-arc welding should be fully killed material, such as ASTM A-201, to produce satisfactory welding with the high heat input employed by the process. Extreme care must be taken to prevent any penetration of the steel weld metal into the cladding. The plate should be given the conventional preparation on the steel side, with the exception that a steel lip of 3/32 in. min thickness should be left above the cladding. One or two beads of steel weld metal should be run manually to pro-

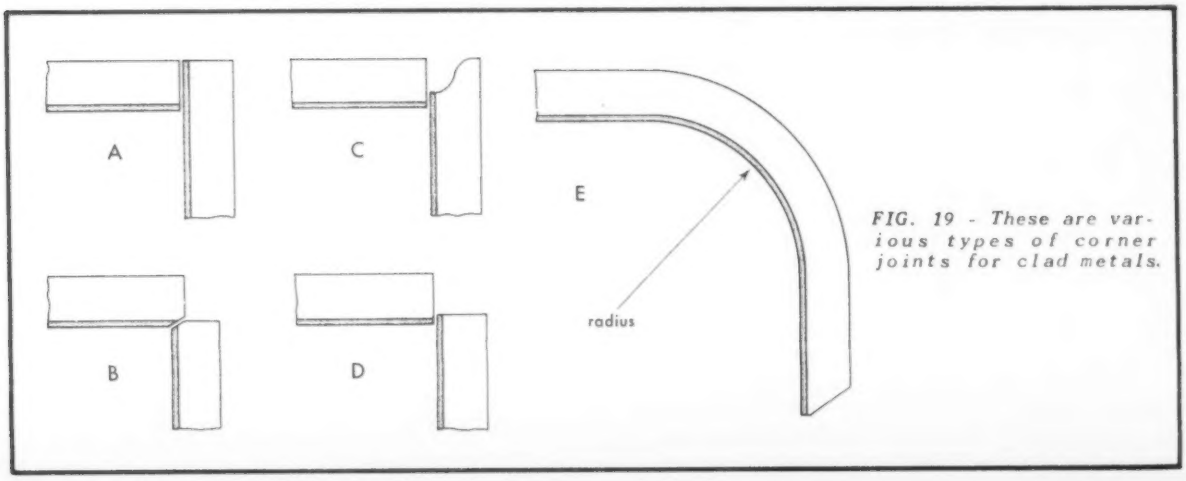



*FIG. 19 - These are various types of corner joints for clad metals.*

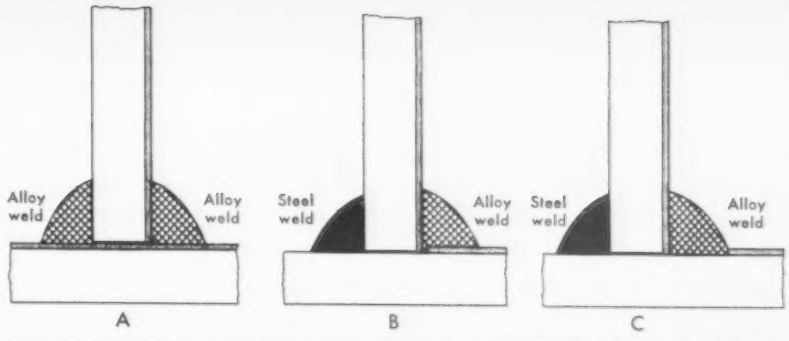



*FIG. 20 - The T joints shown here indicate various welding techniques.*

vide a backing for the submerged-arc weld, and to prevent penetration of the cladding with resulting alloy pickup.

As an alternate, the plate may be prepared with the conventional groove for automatic welding and the cladding may be stripped back not less than ¼ in. on each side. A heavy lip of steel must be provided for backing the automatic weld.

When welding the clad side, the groove should be chipped, ground, or machined down to clean, sound weld metal. Width and depth of this groove should be held to a minimum to prevent excessive dilution of the alloy weld metal by the steel backing.

Because of the normal high penetration of the process, the alloy weld metal should be deposited in two or more layers when it is not possible to compensate for dilution by using a higher alloy welding wire. Procedures resulting in a minimum of penetration must be used. All alloy layers except the cover pass should be given a light grind or chip which will assist in reducing the iron content of the finished weld. The clad side should be manually welded.

Preheating for welding clad metals lowers the temperature differential between the backing plate metal and the weld metal. It helps prevent cracks in both the weld and backing plate metal and reduces shrinkage stresses and distortion. Preheating for welding is not required if the material is light gage or the weldment of simple design. A preheat of 300° to 400°F should be used if the backing plate metal is high in tensile strength, if the plates are heavy gage, or if the weldment is of rigid design.

Preheating may be required for welding all straight chromium stainless clad steels except type 405. Type 410 is martensitic and susceptible to small changes in carbon content. It is air hardening unless the carbon is less than 0.06 pct. The balance of straight chromium clads (14-16 Cr and 16-18 Cr) are brittle in the as-welded condition and should be preheated.

These materials should be heated to 300° to 400°F and held during welding. Preheating may be done locally at the welding zone. After welding, the structure should be annealed according to table IV before cooling.

Corrosion-resistant properties required of the clad surface and physical properties specified for the welds and welded joints demand a high quality weld. Defects regarded as of little importance in mild steel fabrication may be of major concern in clad or solid corrosion-resistant materials. Incorrect joint preparation and fitup cause most common defects. Departure from correct procedures will result in welds of poor mechanical and chemical properties. Undercutting of the clad surface will reduce fatigue strength and may reduce the thickness or eliminate the protection of the cladding. For example, a ¼ in., 10 pct clad plate has 0.025 in. of cladding. If this is undercut to any appreciable extent, the corrosion-resistant service life is reduced or lost. All undercut sections should be covered with weld metal.

Incomplete penetration and lack of fusion of the weld metal will tend to start cracks at the unfused area and in extreme cases, coupled with additional defects such as undercuts, offer a channel for corrosive materials. Porosity occurring in clusters in the weld at the start of a new electrode may be caused by excessive currents, instability of the arc, insufficient slag removal, damp electrodes, improper groove preparation, improper electrode manipulation, and poor electrode coating. Porosity below the weld surface will act as a stress raiser and porosity on the weld surface will be a focal point for corrosion.

Some electrodes give trouble at the start of a bead because of nonmetallic inclusions found in clusters or groups. This may be overcome by starting a bead on top of the preceding bead and burning off about 1 in. of electrode before starting the weld. Excess metal on top of a bead can be chipped or ground off. Dead shorting the electrode on a copper bar for a short time prior to welding is helpful in some cases. Baking the electrode at a temperature recommended by the manufacturer helps when clustered or stringer porosity is found.

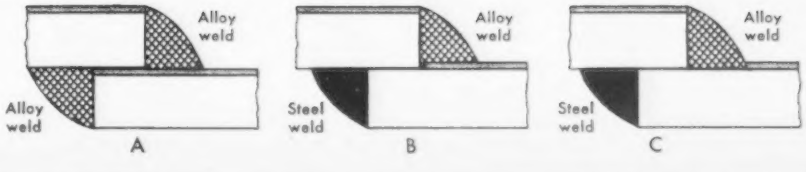



*FIG. 21 - Lap joints shown here illustrate possible welding methods.*

To relieve the major portion of stresses caused by welding, the vessel should be heated to some predetermined temperature and held at that temperature for 1 hr per in. of thickness, fol-

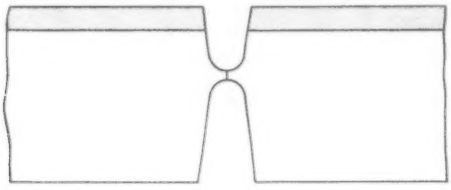


*FIG. 22 - The double U joint is shown here.*

lowed by slow cooling in the furnace or in still air. This temperature will allow highly localized stresses to relieve themselves by plastic flow. The thermal cycle will also transform hard brittle martensite that may form in some materials into a more ductile structure. Table V shows recommended stress relief temperatures.

Pressure vessels, weldments to be machined, structures with widely different sections, weldments of high hardenability and high-alloy materials are examples of materials or structures that should be stress relieved. Many codes and specifications require stress relieving after welding.

The normal temperature used for mild steel is 1100° to 1200°F. A temperature of 1200° to 1250°F produces the greatest amount of carbide precipitation in austenitic stainless. Therefore, these materials should not be given a normal stress relief temperature unless carbon content is extremely low or the material has been established with titanium or columbium. Type 321, stabilized with titanium; type 347, stabilized with columbium; and types 316 and 304 with 0.03 pct max carbon can be given normal stress relief treatments without danger of excessive carbide precipitation. If the structure or service is such that stress relief treatment is required, one of the low-carbon claddings should be used. It must not be overlooked, however, that for some service, precipitated carbides are of no significance and may be disregarded.

Type 410 stainless is martensitic and will harden at slow rates of cooling unless of the low carbon grade. It may be preheated to 300°F min and given a stress relief treatment following welding. The same treatment may be used for type 430. These materials are at times given an annealing heat treatment following welding as shown in table IV. The annealing treatment, while primarily to insure high ductility in the weld metal and in the heat-affected zone, will act to relieve internal stresses. Type 405 is ferritic and not subject to excessive hardening. However, areas adjacent to the weld may be brittle and the vessel should be heated at 1150° to 1200°F after welding.

# Effect of Sinter on Blast Furnace Practice

SINTER is being produced and used in the majority of the iron and steel plants in the United States and to a greatly increased extent over that of a few years ago. The present picture has come about from the necessities of wartime more than through an understanding of the benefits to be derived. Until recently, sintering was chiefly thought of as a low cost operation which enabled the blast furnace operator to utilize fine ore and flue dust. It was suspected that certain other advantages, particularly increased iron production, could be realized from the use of sinter in the blast furnace.

Recent investigations point out many probable advantages. There seems to be little question that increased iron production can be effected with decreases in coke consumption and flue dust production in the blast furnace. These benefits can be achieved, however, only through closely controlled sintering operations.

*This is an abstract of a paper entitled "Sinter Quality and Effect of Sinter on Blast Furnace Practice" delivered by J. L. Mauthe, vice-president in charge of operations, Youngstown Sheet & Tube Co., at the Eastern States Blast Furnace & Coke Oven Assn. spring meeting, held recently in Youngstown.—Ed.*

Studies would indicate that from a size standpoint, sinter is preferable to the highest quality natural ores, as well as to ore fines and flue dust, for blast furnace charging. It is true that even better results have been obtained from the use of oversize ore, which is accumulated by the screening of ore previous to its use in the sinter plant. Obviously, preparation of oversize ore by screening would be impractical if the screened fines were not to be sintered. For this reason, a comparison between the qualities of oversize ore and sinter can hardly be made. It is evident that the use of larger size material such as sinter should increase iron production with a corresponding decrease in coke consumption; however, it should be remembered that very large-sized material can be detrimental to blast furnace operation.

Experience has also shown that a charge consisting entirely of very even-sized material is not most desirable. Stock travel is apparently impeded by a very uniform burden, and hanging often occurs, and the explanation of this may lie in present blast furnace design. It is felt that the present design is not the best suited for higher sinter burdens, and this is possibly also true of very even-sized burdens.

Porosity is a quality required of a good sinter. The surface area of sinter particles is increased several times by porosity; in addition the passages and voids of a porous sinter aid, to some

degree, in the circulation of blast furnace gases. Although several plants have incorporated porosity testing among their other metallurgical control procedures, a standard test method has yet to be set up. Usually porosity is expressed as the percent of voids per unit volume. It is felt that present tests are of little value since a sinter having a few large voids might be judged more porous than one having many fine voids.

While the reducibility of ores and sinters is dependent on the size and shape of the material, it is possibly even more dependent on the chemical form or state of the sinter constituents. Numerous studies and experiments have been made in the past few years to determine the degree of reducibility of sinters as compared to that of ores. Some very definite conclusions have been drawn, many of which disagree with one another. It would seem that discrepancies are not due to erroneous studies, but instead to a very incomplete understanding of sinter itself. This may be a very simplified explanation, but it would certainly seem that the sinters being produced today and used for experimentation purposes vary widely in chemical properties. If such is the case, it would explain the difficulties now being encountered in attempts to evaluate sinter properties and functions. It is the opinion of the author that sinters produced in different plants may vary greatly, particularly with regard to chemical properties, and that these variations are a source of the differences found in their use.

Since the early observations by Klugh, there have been disagreements as to the formation and effect of iron silicate ($Fe_2SiO_4$), or fayalite, in sinter. Recent work has done little to clarify the picture insofar as a general agreement being reached is concerned.

About the only unqualified conclusion which can be drawn directly from the results of 12 different tests studied is that fayalite may be formed during the sintering of fine ore and flue dust. Fayalite was found to be present in appreciable amounts in nearly all of the sinters examined. One notable exception is the study made by J. E. Greenawalt, whose experimental sinters showed little or no evidence of fayalite formation.

The need for application of quality control methods to the production of sinter is evident. These methods must include determination of the amount of fayalite which forms and steps which can be taken to limit this formation. As yet little has been done in applying the recently developed information on sinter quality to actual operations, although at one plant comparatively low blast furnace yields led to an investigation of the value of sinter additions to the charging stock. Microscopic and petrographic studies were made which pointed out the very deleterious effect of fayalite on the reducibility of sinter. In addition to the inherent stability of the silicate itself, the "enameling effect" of fayalite on the cell walls of the sinter was found to be considerable. It was also established that the amount of silica present in the feed mix; in fact, in one study a straight line relationship was found to exist. By altering their concentration processes so as to effect greater elimination of silica, a higher grade of sinter was produced, resulting in improved blast furnace production rates. A procedure was then set up for a continuous micrographic check for fayalite. The actual analyses were made by the sinter plant foreman. A quality control procedure such as this would undoubtedly be of great benefit to those operators who are experiencing difficulties in realizing the potential advantages of the use of sinter in the blast furnace.

Careful control of the carbon content of the sinter mix is the most effective and most economical way to minimize fayalite formation. By adding the minimum amount of carbon necessary for combustion, excessively high sintering temperatures will be avoided. High sintering temperatures promote the formation of fayalite by facilitating reactions between iron oxide and silica.

The use of ore fines and flue dust low in silica content is also somewhat effective in controlling fayalite formation. This may be accomplished by removing silica from the feed to the sinter plant. Where this treatment is impractical, the addition of enough lime (CaO) or highly basic openhearth slag to combine with the silica might be effective. It is quite possible that in the future a good portion of blast furnace charging stock will consist of a self-fluxing sinter.

The potential benefits of sinter in the blast furnaces are obtained from its influence on the amount of wind that may be blown, its enrichment of the burden in iron, and its greater reducibility. The first two of these effects may be measured directly, whereas no index of reducibility is readily available from furnace production data at this time. A graph of the effect of sinter on burden richness indicates that about 15 pct sinter will increase the total iron content by 1 pct. The effect of sinter particle size as against normal ore size is such that by charging fairly large amounts of sinter as much as 10 pct additional wind can be blown efficiently.

Tests conducted on other furnaces show 1000 cfm of wind increase, and a production increase of about 16 tons per day, which, undoubtedly, can largely be attributed to the advantages of size and the porosity of sinters.

Extrapolations from data gathered at Youngstown Sheet & Tube, and further study of the effects of higher than 30 pct sinter in the charge, have led to estimates of increased tonnages as follows:

Twenty to 25 pct sinter yields 5 pct additional tonnage. This amounts roughly to 1 pct added production per 5 pct sinter. From 25 to 35 pct the increase is only about 0.8 pct for each 5 pct sinter. From 35 to 45 pct, the increase becomes only 0.5 pct for each 5 pct sinter.

A great deal of work is yet to be done along certain lines. Generally, there is a great need for improvement of sinter quality and this will no doubt develop with increased understanding of the qualities which are desired. The difficulties now encountered in evaluating the use of sinter in the blast furnace must also be removed before the full value of sinter and the sintering process can be realized. Such development of the theory and technology of sinter production will lead to a much greater and more beneficial use of sinter in the blast furnace than is now known.

# Plating Zinc Diecastings at

*FIG. 1 - Start of the automatic line for copper and nickel plating. Loaded racks delivered by the chain conveyer are hung on copper bars to be picked up by the plating machine conveyer.*

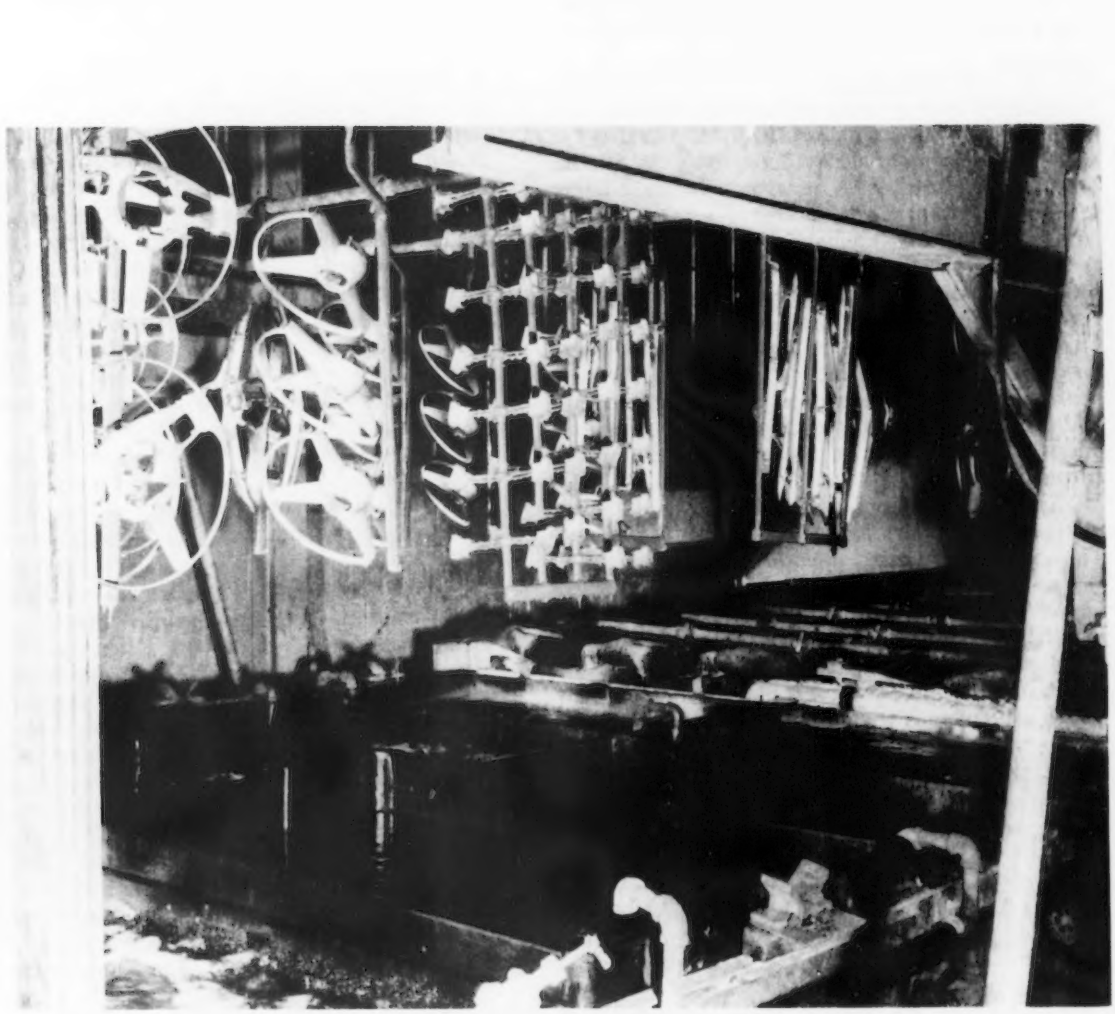


*FIG. 2 - Work that has just been copper plated in the tank in right foreground is about to be lowered by the automatic conveyer into a rinse tank.*

# Gerity—Michigan

By WILLIAM MacLEAY
*Superintendent of Plating, Gerity-Michigan Corp., Adrian, Mich.*

***Procedures used on two electroplating lines handling the bulk of the zinc base diecastings plated at the Gerity-Michigan Corp. are discussed in this article. One of these is an automatic line for small and medium size work and the other is a deep tank line using manually controlled hoists for large pieces such as automobile grilles.***

ELECTROPLATING to modern highly developed specifications requires extremely close control. Unless high plating standards are consistently maintained, rejects will become excessive and profits will suffer.

The plating lines set up at the Gerity-Michigan Corp. are designed to handle an unusually large number and variety of zinc alloy diecastings. A major proportion of the parts are automotive hardware, many of which are for external exposure. Bathroom hardware and some other products are also plated.

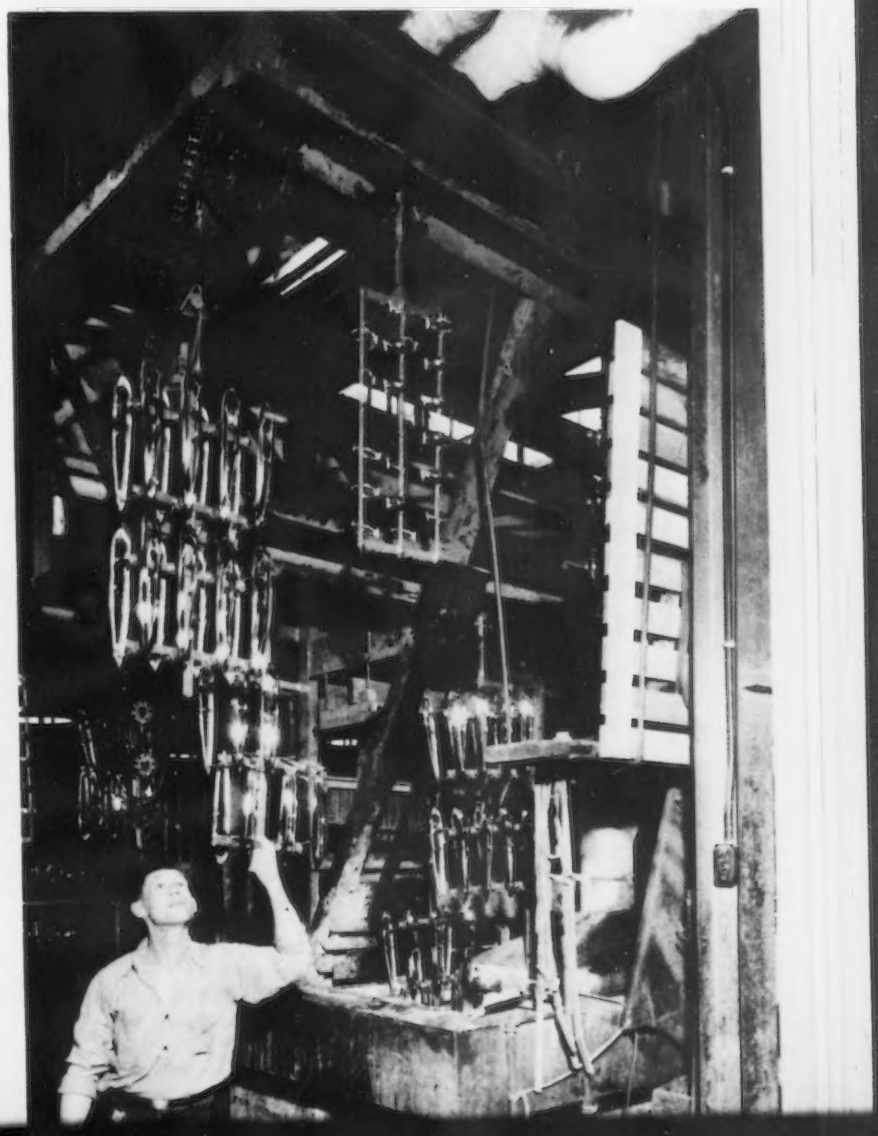
Most of the plant's production is handled through two plating lines. One uses automatic conveyers, and the other, which handles larger diecastings, has deep tanks and shifts the racks by manually controlled, electric monorail hoists. The lines employ similar, but not identical, procedures and solutions.

On the automatic line, cleaning, copper and nickel plating are done on a Crown Rheostat Co. plating machine which has been extensively adapted by Gerity engineers to suit the company's needs. Changes include the addition of an air-operated conveying mechanism for advancing plating racks on the two parallel rows of tanks.

Racking of castings is done in a special racking room. The racks are then hung on a chain conveyer which carries them through a five stage degreaser to the start of the plating line, shown in fig. 1.

Procedure for this automatic line has been developed as follows: (1) Soak for 35 sec—the time for all single tanks—in an alkaline cleaner, containing 4 oz per gal of Wyandotte No. 147 with some added emulsion, maintained at 170°F. (2) Hot spray and dip rinse. (3) Clean electrolytically in an alkaline bath containing 6 oz per gal of Wyandotte No. 147 at 175°F. (4) Cold dip rinse. (5) Dip in a 4 pct phosphoric acid solution containing an inhibitor and a bright-

*FIG. 3 - Racks are shown entering the automatic chrome plating machine. Racks at high level are returning from the far end of the line for unloading.*



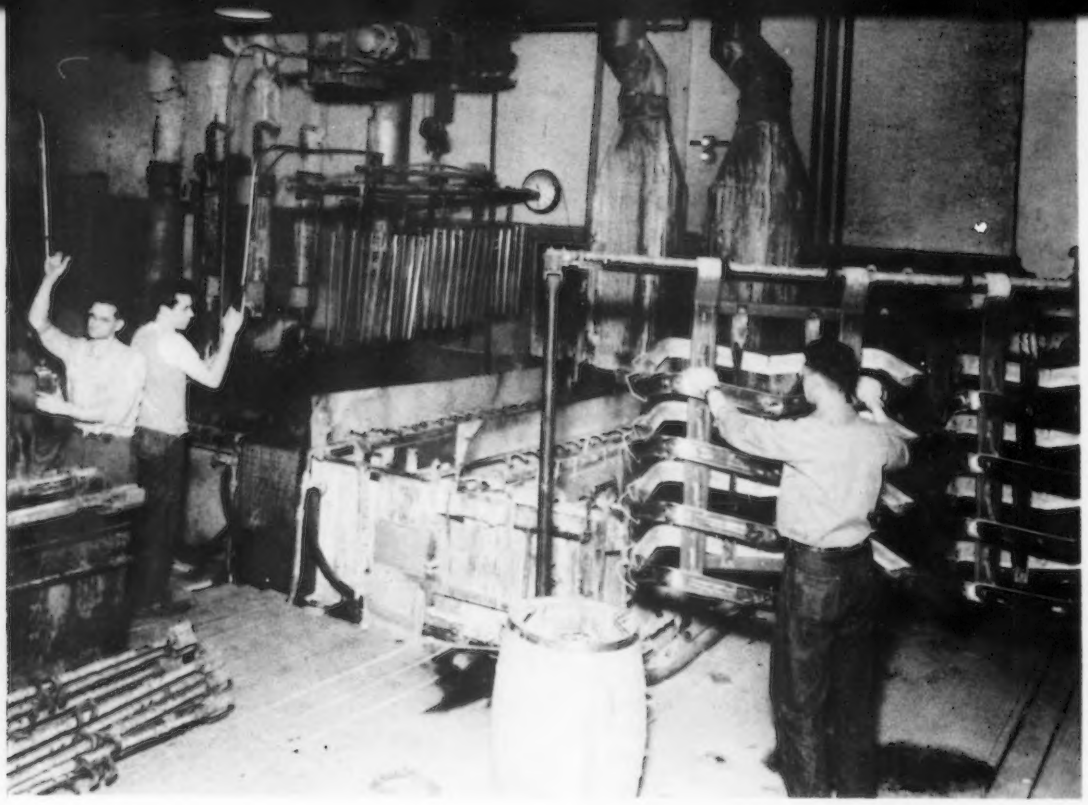
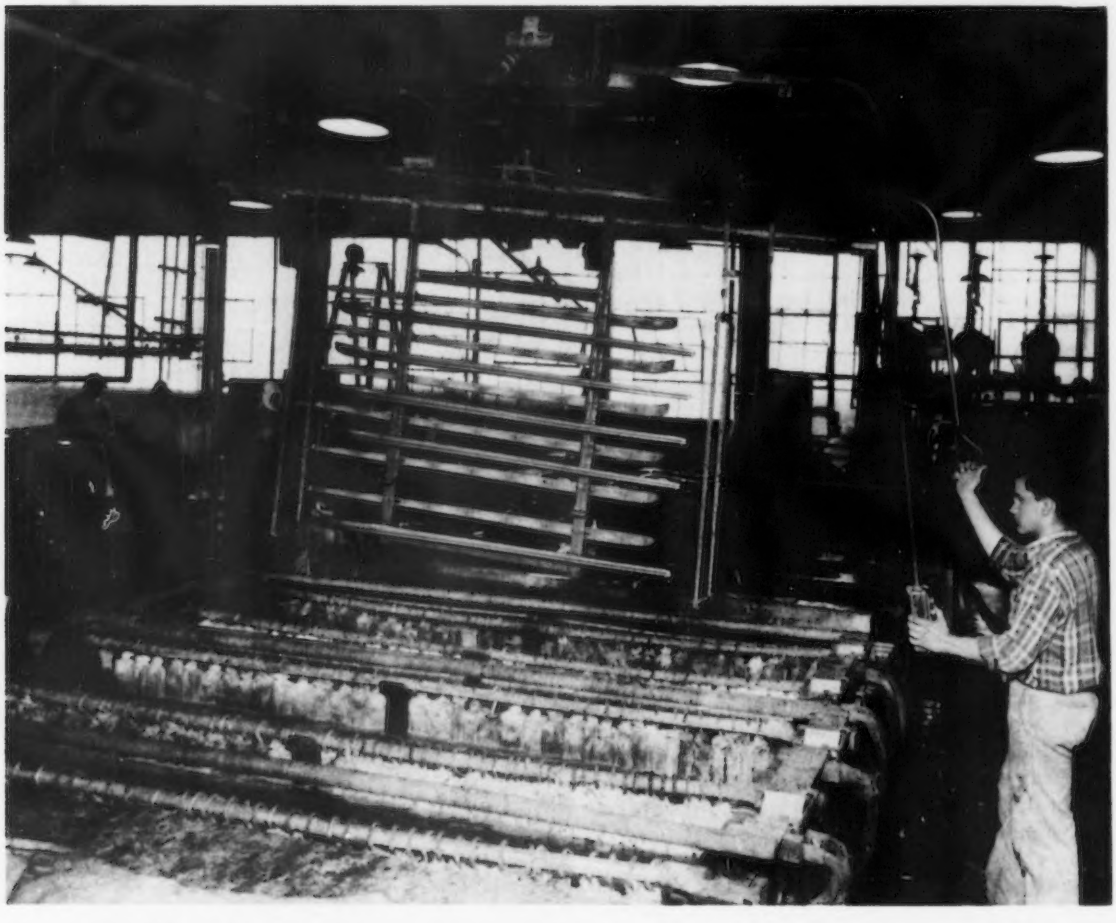


*FIG. 4 - Start of the double row of deep tanks for large die-castings. Operator at right is racking Oldsmobile grille bars.*

*FIG. 5 - Rack of automobile moldings is being lowered into one of the deep nickel plating tanks. Note thieves to prevent burning of the ends of the pieces.*



ener. This dip results in some phosphating and is considered superior to a sulfuric acid etch for this particular line. (6) Spray and dip rinse. (7) Copper strike for 2.2 min in a standard cyanide solution at 130°F. This strike will prevent immersion plating in the subsequent bright copper plating tank. (8) Copper plate in a standard MacDermid bright copper solution for 19 to 20 min. This is sufficient time to apply a 0.0004 to 0.00054-in. coating of copper. In this tank the solution is continuously circulated and filtered and the racks themselves are agitated during plating. Temperature of the bath is 150°F. Current density is varied somewhat according to the part, but generators usually supply 5000 amp to each of the two parallel tanks. Although this is termed a bright copper bath, it actually is kept semibright as a slight matte tends to mask minor defects without preventing a full luster from being obtained in the subsequent bright nickel plate. Smoothness is considerably improved by using a polarity reversing unit which is set so that each 15 sec plating period is followed by a 3 sec deplating time. Fig. 2 shows work leaving the copper bath. (9) Cold dip rinse in two tanks adapted for air agitation of the water. (10) Etch for 35 sec in 5 pct sulfuric acid. (11) Cold dip rinse. (12) Nickel plate for 25 min in a standard Harshaw, high metal, high chloride, bright nickel bath. The solution is continuously circulated and filtered and run through heat exchangers that maintain a temperature of 140°F in the tank. This bath is continuously dezinced by circulation through a supplementary tank where any zinc content is electrolytically deposited on steel cathodes. Such a dezincing system eliminates the necessity of raking the tank for occasional castings that may have become detached from the racks. The 25-min plating time gives an average nickel coating of 0.0009 in. Current is kept at 5000 to 5500 amp per tank load. (13) Rinse in water used for replacement in the nickel tank in order to save dragout. (14) Rinse in air-agitated water.

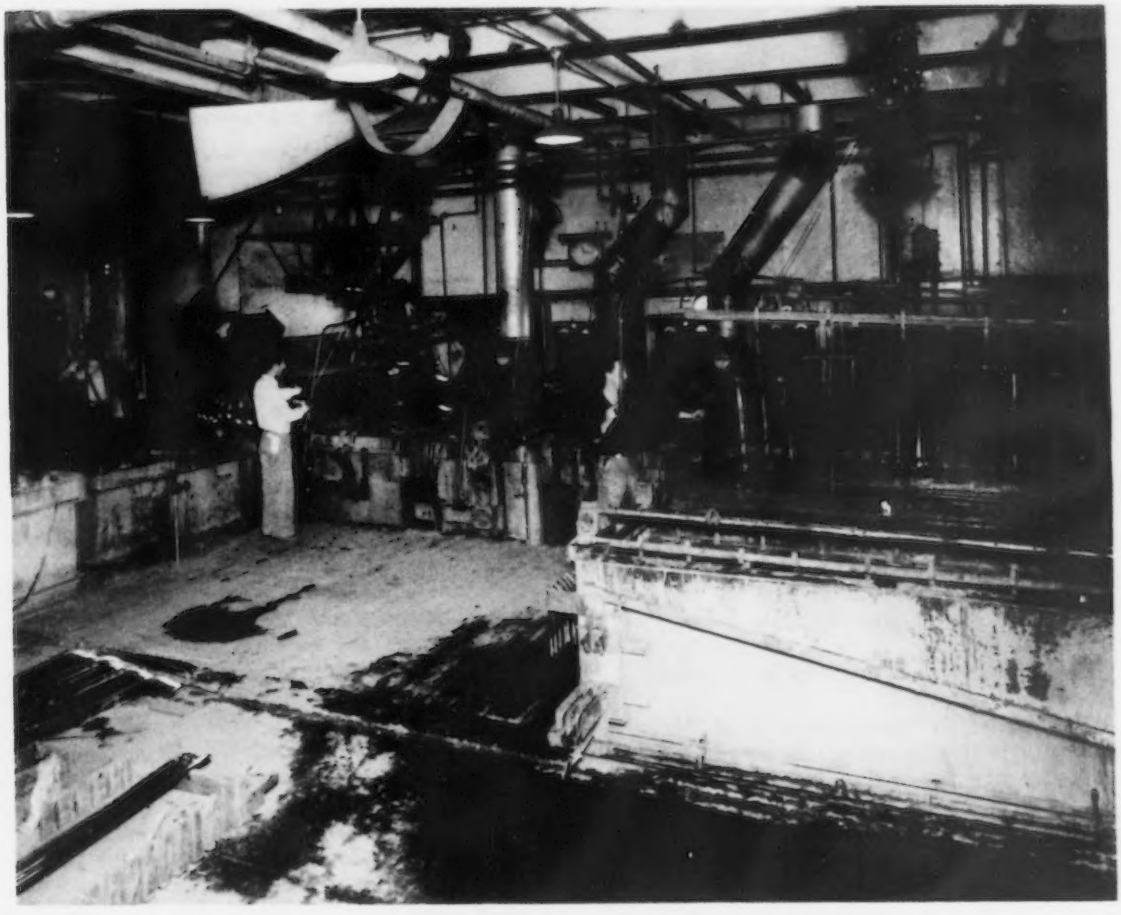


*FIG. 6 - Group of tanks for chrome plating of larger pieces. Operators use electric hoists for handling the work.*

This completes the copper-nickel plating cycle. The castings are inspected and racks are transferred to the loading end of the chrome plating line. Any castings not sufficiently bright are removed from the racks, lightly buffed and returned. For some castings, specifications will call for buffing between nickel and chrome applications.

A LaSalco plating machine equipped with a chain to advance the racks is used in the chrome process. Loading end of this line is shown in fig. 3. The procedure used is: (1) Clean for 30 sec in a mild alkaline solution, containing 4 to 5 oz per gal of BN Wyandotte cleaner, at room

temperature. (2) Spray rinse in cold water. (3) Etch for 30 sec in a 3 pct sulfuric acid solution. (4) Spray rinse with cold water. (5) Plate for 2 min in a standard chrome plating bath. (6) Dip rinse in the water to be used for makeup solution in order to save dragout from the chrome bath. (7) Cold dip rinse. Above this rinse tank is a water jet which sprays and cleans each contact shoe. (8) Rinse in hot water. (9) Dry in warm air. The conveyer chain carries racks through a warm air duct as it moves them to the position where they are removed from the conveyer and hung on a monorail for transfer to unracking stations.

Castings are inspected and packed upon unracking except where specifications require enameling. Enamel is generally applied by spray gun through masking, and the pieces are passed through a drying oven, given a final inspection and packed.

This automatic line is reserved for small to medium sized pieces, as the tanks and other equipment are not large enough to handle automobile grilles and moldings or other large castings.

A line equipped with tanks 10 ft long, 9 ft wide and 6 ft deep, arranged in two rows with an aisle between, is used for the larger pieces. A monorail with 5 electric hoists, each equipped with a carrier having two hooks for picking up the copper bars from which racks of castings are suspended, runs parallel to the tanks. The bars are loaded one at a time while resting on vertical supports, as shown in fig. 4. Racking of the castings is done at this point since the racks are large and heavy and would require special handling facilities if racking were done in a remote area. Some of these larger pieces such as the moldings in fig. 5 require application of thieves at the ends to avoid burning the plate at these points.

When a bar is loaded with filled racks, an operator lifts it with one of the hoists and walks it through the succession of tanks in the two rows. At each tank the bar is lowered so that the ends of the bar rest on contact blocks which supply the current.

Timing on this line, except for quick dip operations, is done by a girl, sitting at an elevated desk overlooking the two rows of tanks, who signals the operators when a shift is to be made. This system has been found to centralize control at a point where records can be kept and provides a check against processing errors.

Procedure along the deep tank line is: (1) Electroclean for 2 min in the same hot cleaner as is used on the automatic line. (2) Dip rinse in warm water. (3) Cold rinse. (4) Etch 20 sec in 3½ pct solution of sulfuric acid. (5) Spray and dip rinse. (6) Copper strike 3 to 5 min in standard cyanide solution. (7) Cold spray and dip rinse. (8) Etch for 20 sec in 3½ pct sulfuric. (9) Cold dip rinse. (10) Copper plate 10 to 22 min in a Dayton bright copper solution which is continuously filtered, agitated and held at 75° to 80°F. Average thickness of plate applied in this step is 0.00065 to 0.00080 in. (11) Three cold dip rinses in successive tanks. (12) Nickel plate in Harshaw bright nickel solution for 30 to 35 min with mechanical agitation of the work. Three tanks with continuously filtered solutions maintained at 140°F are provided for nickel plating. An average of 0.0009 in. of nickel is applied. (13) Dip in dragout-saving rinse tank and finally in a second cold water tank.

Upon completion of this cycle, parts are inspected and areas not sufficiently bright are buffed lightly and returned to the plating racks for delivery to the adjacent chrome plating setup.

Tanks in the chrome plating group are set along three sides of a square and have a separate monorail loop with five electric hoists similar to those on the copper-nickel line. The chrome plating solution and schedule substantially duplicate that on the automatic line except that timing is not automatic, but is done by the operators with the help of wall clocks.

In fig. 6, the cleaning tanks are on the left of the square, the plating tanks are adjacent and the final rinse tanks are on the right, opposite the cleaning group. As the final rinse water is hot, castings dry quickly without hot air application and are unracked in an adjacent area used for inspection and packing. Castings that do not pass inspection are stripped to at least the copper coat and replated. Racks are cleaned before being returned for another trip through the cycle.

Constant vigilance on both processes and solutions in order to spot rejects and the causes of rejects as promptly as possible has been found to pay dividends in maintaining production at a profitable level.

*The mechanized buffing setups used in preparing work for electroplating at Gerity-Michigan were described in "Special Buffing Machines and Fixtures Reduce Plating Shop Costs," THE IRON AGE, July 8, 1948, p.80.*

## Noncontact Thickness Gage Uses Radioactive Carbon

AN instrument, developed on the principle that the absorption of beta rays emitted from a radioactive carbon source is a function of material thickness, is being used for noncontact gaging of Pliofilm sheets and other thin films at the Goodyear Tire & Rubber Co., Akron, Ohio.

Pliofilm, a transparent rubber hydrochloride, is being gaged continuously as it issues from the rolls. The sheet is passed through a slot below which is a bit of carbon 14, the radioactive isotope used. Emanations from the carbon penetrate the sheet and reach an ionization chamber above the slot to produce a minute electrical current which is amplified by miniature vacuum tubes to the point where it is sufficient to operate a standard electric meter. This meter shows the strength of the rays and has been calibrated to read thicknesses directly.

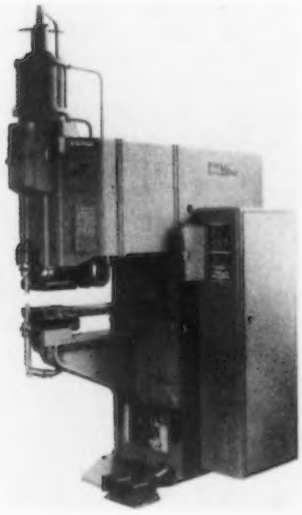
The new gage will read accurately to 0.000001 in. and in time is expected to attain an even greater accuracy. Construction cost is estimated at a few hundred dollars.

# New Production Ideas . . .

Tri-phase and multiple projection welders, lapping machines, grinders, a plastic molding press and a cold-molding plastic powder, a metal thickness measuring unit, a core pasting machine, and various small tools and attachments are described this week together with hot-spray painting, an aluminized steel, acid proof lining, and a sludge and gum solvent.

### Tri-Phase Welders

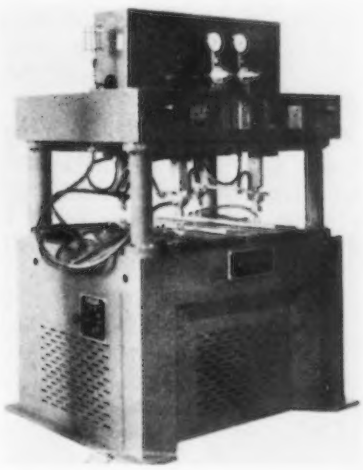
TRI-PHASE welders have been developed by *Taylor-Winfield*, Warren, Ohio, to help overcome



supply difficulties. Tri-phase, with three phase balanced power, gives a high power factor at greatly reduced power demand, and is said to improve quality of welds. Welding schedules are easier to obtain and maintain. Reduced electrode wear and pickup are evident with Tri-Phase. Closer spot spacing and less sensitivity to work thicknesses are additional advantages. The Tri-Phase welding circuit permits a greater range of shapes and sizes of work to be welded, especially in deep throated welders. It may be had in spot, seam, projection, and upset-butt welders.

### Multiple Projection Welder

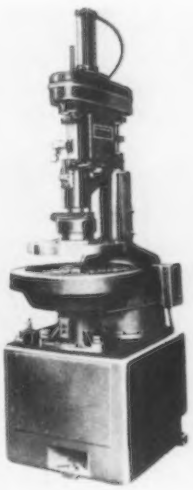
A SPECIAL multiple projection welder designed by *Sciaky Bros. Inc.*, 4915 W. 67th St., Chicago 38, welds four clips simultaneously on four sizes of stove panels. The electrode cylinders are hydraulically operated and adjustable to the four sizes of the stove panels. The machine is complete with all electronic controls integrally mounted. It has four electrodes which series weld the eight projections, and pressure is supplied by two hydraulic boosters. The base houses two transformers and the eight welds are divided into two firings to avoid overloading the power supply. Upper electrodes and lower dies are adjustable to ac-



commodate six different setups. An air operated lifting device automatically lifts welded panels to clear the lower dies and speed unloading.

### Lapping Machines

FOR finishing flat surfaces, a line of machines, trade-named Microflat, has been announced by *Micromatic Hone Corp.*, Greenlawn St., Detroit 4. Of six models, two types use either bonded or loose abrasives. One will finish flat surfaces regardless of the shape or size of the part; the other, which is illustrated, will finish two opposite sides of the parts simultaneously within 0.0001 in. for parallelism. One or many parts may be produced simultaneously on these



high production machines. The surfaces produced will be optically flat within one light-band and can be held to a finish of 1 microinch rms or less if desired.

### Vertical Motorized Spindle

FOR surface grinding, boring and other machine tool applications, a heavy duty vertical motorized spindle available in ranges from 900 to 3600 rpm, $^3/_4$ to 20 hp, has been marketed by *Pope Machinery Corp.*, 261 River St., Haverhill, Mass. The spindle is equipped with sealed-in lubrication, totally enclosed fan cooled motor, and super-precision bearings. It is available with flange or tapered nose for quick mounting of various types of grinding wheels.

### Face Grinder

FOR flat surface grinding, a machine has been offered by *Bowen*, 1607 Crescent Dr., Beliot, Wis., that ranges in sizes from 1

to 100 hp, hand operated or full push-button control. Its grinding head moves a sufficient distance to grind a straight bar twice the length of the wheel's diameter, it is reported. Fixtures are mounted in a horizontal position in locations which permit grinding in one section while another section is being loaded. Ether face or shear cuts may be made.

### Disk Grinder

THE 24-in. Master disk grinder developed by *Kindt-Collins Co.*, 12653 Elmwood Ave., Cleveland 11, is claimed to be made vibrationless through balancing to permit extreme accuracy in grinding. It is adjusted by means of a counterbalanced table which can be moved up or down 11 in. by hand pressure. A reversible disk is provided for right or left hand jobs. Attachment to suction system or dust collector is provided for with a 5-in. hole in the back of the machine.

### Carbide Die-Machine Files

ALTERATIONS or corrections on hardened dies can be made with ground carbide die-machine files produced by *Severance Tool Industries Inc.*, 742 Iowa St., Saginaw, Mich. It is said that these ground carbide files finish faster than the unground type. They can be used in die making, finishing parts, templets, production pieces, and on most any material where a relatively straight surface is to be worked. Several sizes in round, square, rectangular, and triangular shapes are offered.

### Plastics-Molding Press

THE new heavier-built, automatic plastics-molding press announced by *F. J. Stokes Machine Co.*, 6202 Tabor Rd., Philadelphia, features improved slow-close, high pressure control. High pressure at slowed-down press movement can be applied at any point in the molding cycle, and is controlled by the positive action of a conveniently located cam. The 50-ton hydraulic No. 235-A is distinguished by its one-piece frame that eliminates the need for tie-rods, giving ample room for necessary die manipulation.

### Hydraulic Press

A COMPACT, hand-operated portable hydraulic press for laboratory or production work, introduced by *Studebaker Machine Co.*, 1221 S. 9th St., Maywood, Ill., can be adapted to broaching, assembling, piercing, oil grooving, riveting, sizing, forming, flanging, staking, forcing, and small die tryouts. Optional with the unit are electrically

heated platens for plastics or other operations that require temperatures. The heating element is thermostatically controlled. Operating control is by hand lever, producing up to 8 tons pressure. The base is 10x10 in.; height 13 in.; hydraulic ram travel, 3 in.; platens 5½x7 in.; platen openings to user's requirements, 0 to 6 in.

### Tapper Tap Grinder

SHARPENING chamfers of 90° bent and 180° precision hook tapper taps can be performed with a grinder announced by *Henry P. Boggis & Co.*, 1279 W. Third St.,

Cleveland 13. This Model 1500 tapper tap grinder accurately grinds chamfer, greatly increases tap life and quality of threads, it is claimed. It is designed for 90° bent or 180° precision hook taps 3/16 to 1¼ in. and straight shank tapper taps 3/16 to 2½ in. Length of chamfer and amount of relief are variable.

### Metal Stitcher

NO pre-punching, pre-drilling, nor cleaning of parts to be fastened are necessary when stitching metal to metal or to non-metallic materials with the metal stitcher announced by *Acme Steel Co.*, 2840 Archer Ave., Chicago 8. Rivets, screws, bolts, and nails are not needed. An operator simply holds the work in position, trips the foot switch, and in one operation this machine forms the stitch from a continuous-length coil, then drives and clinches it. A 5-lb coil makes about 10,000 stitches, and the machine can be reloaded in 1½ min.

### Cold-Molding Plastic Powder

COLD-MOLDING plastic powder which requires no preheating, no preforming, and no after-baking or finishing has been announced by *Myler Plastics Corp.*, 92 Bishop St., Jersey City 4, N. J. Any color plastic part can be made or matched. The physical properties of Gladite can be varied by formula to adapt it to specific product uses. The powder can be used on either rotary, single-stroke or hydraulic presses. Parts can be turned out at speeds as high as 30,000 small units per press per hr. Each piece comes out of the press smooth and with a lustrous surface, it is reported. Grinding, buffing and polishing are eliminated.

### Flux Coated Welding Rods

THE manufacture of flux coated welding rods by *Eutectic Welding Alloys Corp.*, 40 Worth St., New York 13, has been improved chemically and metallurgically by allowing for a greater and thinner flow of the joining alloy. This rapid flow is said to insure capillary action, yield smoother welds, protect the weld area from overheating and minimize the possibilities of distortion and stress to the parent metal. These electrodes permit welds at heats far below ordinary welding and brazing rods, whether bare or flux-coated, it is claimed.

### Aluminized Steel

A NEW type of aluminized steel providing a surface with heat-radiating properties said to be 85 pct of perfect black body and evolving minimum gas during the manufacture and operation of vacuum tubes has been announced by *Sylvania Electric Products, Inc.*, Em-

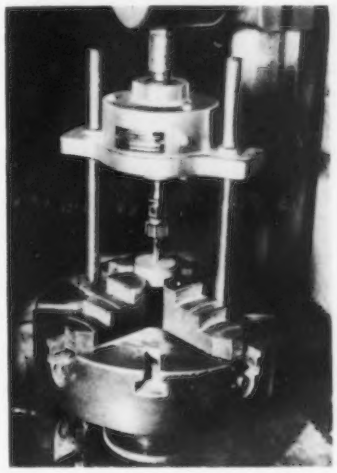
porium, Pa. The material is available in 0.005 in. strips in varying widths, or as anodes and other fabricated parts for vacuum tube use. The product starts with low carbon rimming grade steel which is hot-rolled to 0.080 in. thickness and then cold reduced to 0.040 in. The resultant strip is coated with an alloy of aluminum and silicon, rolled to 0.005 in. thickness and annealed in hydrogen. Finished strip is ductile and has a black finish.

### Metal Thickness Measuring Unit

AN ultrasonic device known as the Metroscope that automatically measures the wall thickness of metal, plastic and glass parts where only one surface is accessible and also makes non-destructive tests to detect flaws and imperfections in these materials, is being produced by *Photocon Research Products*, 1062 N. Allen Ave., Pasadena 7, Calif. The Metroscope employs an electronic oscillator to generate electrical voltage, the frequency of which is varied throughout the turning range of the oscillator. The point or points in this tuning range at which the part resonates are indicated. Since resonant-frequency and thickness of the part are related for any given material, it is possible to calibrate the Metroscope to read thicknesses directly. Thickness of tubes and flat parts between 0.015 and 0.300 in. may be read directly, and up to several inches may be read indirectly. The resonance indications also give information about flaws in solid parts. Steel, brass, nickel, copper, silver, aluminum, magnesium and lead may be measured and tested by the Metroscope.

### Tapping Head

TAPPING the hole and backing out without stopping the work or reversing the machine in a turret lathe setup is said to be possible with the auto-reverse turret lathe tapping head announced by *Errington Mechanical Laboratory, Inc.*, Staten Island 4, N. Y. With the aid of a friction chuck, blind holes can be tapped without tap breakage, it is claimed. The head can also be used on drill press work for production tapping. For this operation the head has a 2 to 1 reverse, and uses guide bars to hold and steady the case.



### Hot-Spray Painting

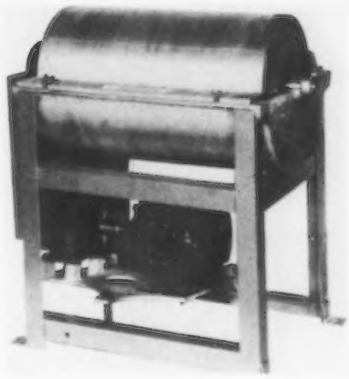
A HOT-SPRAY painting process is a complete thermal control system, introduced by *Bede Products, Inc.*, 3309 West 118th St., Cleveland 11, that uses heat to create optimum spray painting conditions. The main function of the process is to heat paint to any desired temperature (approximately 200°F) through the use of the Bede paint heater which is available in two models: one that heats paint only, and one heating both paint and air. They are used as auxiliary aids to accomplish complete temperature control in spraying operations. Atomizing air and product surface can also be heated to obtain ideal temperature combination. The system reduces paint viscosity and lowers the amount of thinner required. Other advantages include fewer sags, smoother finish and more gloss.

### Bonded Brake Drums

BRAKE drums designed to dissipate excess heat have been developed by the Al-Fin Div., *Fairchild Engine & Airplane Corp.*, Farmingdale, N. Y., for use in heavy bus, truck, and trailer field. The Al-Fin bonded bimetallic brake drums heat quickly to about 500°F and stay at that temperature as long as they are used. Brakes equipped with the Al-Fin aluminum-bonded-to-cast-iron drums do not fade due to the increased heat conductivity of the special construction. It is claimed Al-Fin drums give uniformity of brake operation over a long period of heavy braking, and will last longer because cracking and checking of the braking surfaces, caused by overheating the iron, will be avoided. It is reported that actual dynamometer testing has shown that no brake drum usage can cause the Al-Fin bond to fail.

### Core Pasting Machine

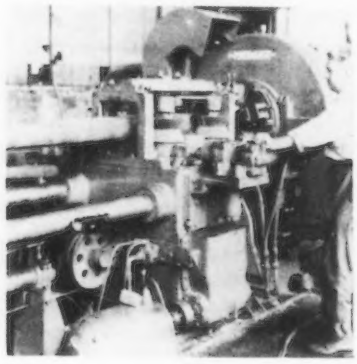
EVEN thickness of paste on the entire surface of the vented half of a core is assured with the core paster developed by *Valley Mfg. Co.*, Cherry Valley, Ill., for the pasting of large and small cores for all types of castings. Both small and large cores can be pasted at the same time on one machine. This is done by adjusting ends of the spacer plate the proper distance from the drum producing the desired thickness of paste at one end of the drum for large cores and a lighter consistency of paste at the other end of the drum for small cores. The drum and all castings coming in contact with the paste are aluminum; the frame is welded steel.



### Bar and Tube Turners

CENTERLESS bar and tube turners for turning bars and tubes from 1 to 10 in. diam feature a new roll-type feed and an infinitely variable ratio of bar feed to cutting tool speed. This roll-type feed

has an equalizing device for centering the work piece in the cutter head, making possible equal removal of stock around a bar surface and concentric turning on



tubes. It is said this feed gives a positive, steady feed of the bar or tube through the cutters. Separate drives are arranged for the cutting tools and the bar feed, so that a variable number of combinations are possible between these two to give close tolerance and superior finish for precision turning, or high production turning for a scalping operation. The turners which are manufactured by *Medart Co.*, St. Louis 18, are fully automatic push button operated.

### Acid Proof Lining

AN acid and alkali proof lining material for fume carrying ducts is being offered for general use by *Ceilcote Co.*, Rockefeller Bldg., Cleveland. The new product, known as Ceilcote Spray Grade, is proof against acids and alkalies and has a maximum temperature resistance of 300°F. It bonds to either wood or metal to an exceptional degree, it is claimed. Application is by a special spray equipment which builds a lining up to ⅛ in. thickness, affording expansion and absorption and eliminating cracking from vibration.

### Emulsion Cleaner

AN improved cleaner, Houghto-Clean 220, available from *E. F. Houghton & Co.*, 313 W. Lehigh Ave., Philadelphia, is an emulsion cleaner possessing high solvency properties. It readily mixes with water, and is attracted to water in the spray rinse, making its removal thorough. Houghto-Clean 220 contains a powerful corrosion inhibitor, is non-toxic, and does not present a fire hazard. This cleaner can replace straight petroleum solvents or nonflammable solvents used for industrial cleaning. It is said to be equally efficient for cleaning ferrous or nonferrous metals.

### Gum and Sludge Solvent

FOR users of hydraulic equipment, addition of a new sludge and gum solvent to regular hydraulic oils is said to remedy any sluggish operation caused by contaminants. The new product, known as Hydro-Solv A, has been developed by *Swan-Finch Oil Corp.*, After the recommended 100 to 150 30 Rockefeller Plaza, New York. After the recommended 100 to 150 working hours allowed for the treatment, the system should be completely drained and new oil put in. Gum and sludge, either in solution or suspension, is removed with the dirty oil. The necessity of cleaning the system after using Hydro-Solv A is eliminated. The product is a liquid concentrate composed of several highly active organic solvents. It is not a lubricant, and is non-corrosive.

### Air-Hydraulic Vise

THE DVH-150 air-hydraulic vise uses controlled air pressure as a clamping force and is said to develop a clamping pressure of 150 times the operating air-line pressure from any air line pressure up to a maximum of 125 lb. This model which has been released by *Bellows Co.*, Akron, Ohio, has a jaw opening adjustable from a fraction of an inch to a maximum of 5 in. in increments of 1/32 in., through a positive locking adjustment nut on the hydraulic ram. To facilitate clamping rough cast-

ings, the vice operates through the full range of jaw opening with jaw power movement of 0.2 in. Jaws are hardened steel 6 in. wide. Power is obtained from an air motor in combination with a special hydraulic intensifier unit. The vise may be obtained for hand or electrical operation. Overall length is 30-3/16 in., width 9 in., height 6⅛ in.; jaws are 1⅝ in. high.

### Electric Drill

A NEW ½-in. portable electric drill features balanced armature for smooth running, housing and handles of polished aluminum, universal ac-dc motor, blower-type

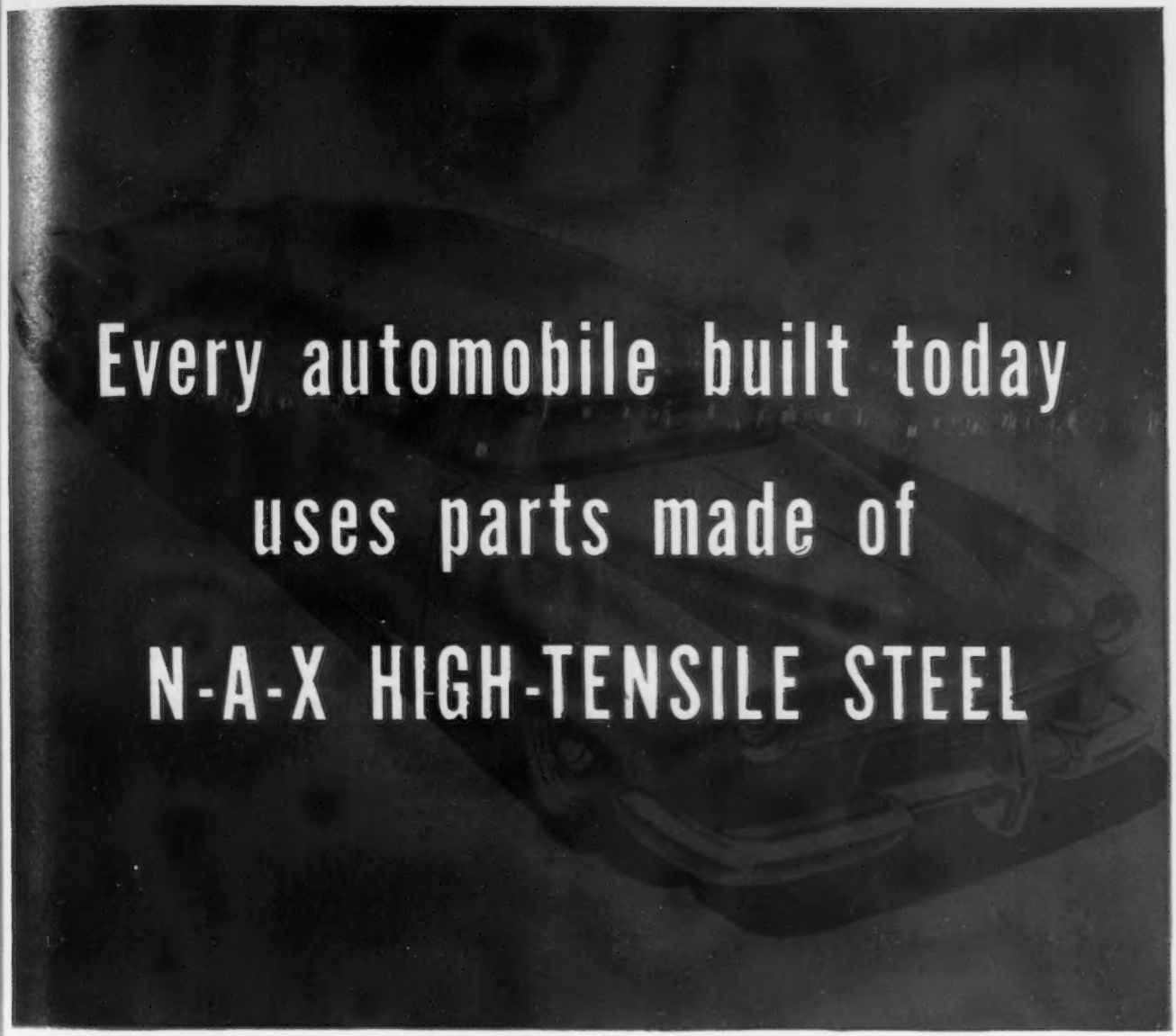
fan for cooling, removable side handles for close-quarter drilling, Jacobs hex key chuck, and Cutler-Hammer trigger switch. Specifications of this drill which is offered for maintenance and production drilling by *Portable Electric Tool, Inc.*, 255 W. 79th St., Chicago 20, are as follows: No-load speed of 400 rpm; full-load speed of 240 rpm; capacity in steel, ½ in.; capacity in hardwood, 1 in.; wood augers up to 2½ in.; hole saws up to 2½ in.; heat-treated steel gears in grease-tight compartment; overall length of 15½ in.; net weight of 9 lb.

### Power Sweeper

USING a high speed revolving brush, plus vacuum dust control, a power sweeper that cleans a path 36 in. wide has been announced by *G. H. Tennant Co.*, 2530 N. Second St., Minneapolis 11. The machine drives like a car, forward or reverse, is one-man operated, and easy to control, it is reported. Speed ranges up to 6 mph. and 54,000 sq ft of floor space can be swept per hr.

### Asbestos Glove

A LEATHER reinforced asbestos gauntlet, redesigned by *Industrial Gloves Co.*, Danville, Ill., eliminates the usual seam on the palm where thumb and palm are joined. This feature provides a leather wearing surface over the asbestos palm, fingers and thumb; the seam is on the top digit, out of the wearing zone. Better protection, longer wear, and more economical service are claimed for this improved glove.



# Every automobile built today uses parts made of N-A-X HIGH-TENSILE STEEL

Since 1940, when Great Lakes Steel pioneered the application of high-tensile, low-alloy steel to cold-stamped automobile bumpers, there has been a growing trend to N-A-X HIGH-TENSILE STEEL in the automobile industry.

Today, every car manufacturer is using the inherent better properties of N-A-X HIGH-TENSILE STEEL for some part of his automobile.

Bumpers and grilles – hoods and fenders–body panels and deck lids – frames and bracings – wheels and hub caps represent a few of many applications of N-A-X HIGH-TENSILE STEEL to the modern car.

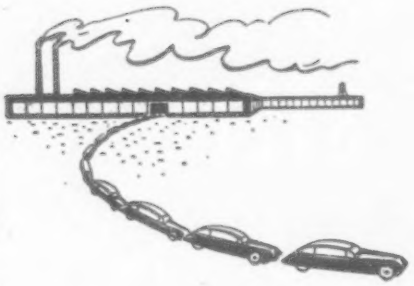
MAKE A TON OF SHEET STEEL GO FARTHER
Specify–
N-A-X
HIGH-TENSILE STEEL

**GREAT LAKES STEEL CORPORATION**
N-A-X Alloy Division • Detroit 18, Michigan
UNIT OF NATIONAL STEEL CORPORATION

# Assembly Line . . .

WALTER G. PATTON

**• Not all steel prices raised by F.O.B. mill selling . . . Auto executives declare their sales methods need not be changed . . . Ford assumes labor talks . . . GM and Crosley hold price line.**



DETROIT — Detroit's automakers, who represent the largest concentration of steel users in the nation, are starting to add up the increased cost of steel delivered to them as the result of the mills going f.o.b. Some have come up with a range of $4 to $6. Others, however, have preferred to wait until the mills new steel price is published.

Little resentment was found among consumers over steel's shift to the new selling methods. Consumers here wish it hadn't happened, but that is about all the objection they raised. The shift to f.o.b. mill did not cause all steel prices to go up. Steel buyers here point out that Great Lakes' price remains about the same. Great Lakes' f.o.b. price in most cases is now one cent a hundredweight lower than was the former delivered price.

The prices paid by consumers on some steel items not made in Detroit were not changed at all by the f.o.b. move. Many steel products have never been based on Detroit. In these cases consumers have for many months and, in cases, years, been paying the full rates from the basing points at which these products are made. Many bar sizes, shapes, etc., fall in this category.

Practically all metal users here expect the new steel prices to be substantial. Again little resentment can be found among the steel users. They predict it will mean higher costs and therefore higher selling prices. They are more or less accepting this last turn of the merry-go-round price spiral with resignation.

Observers here, who have been watching the steel prices, believe that when all the increased steel costs are figured out the two automobile makers who have not yet joined the last round of higher car prices will be forced to move their prices up also. The largest of these is General Motors Corp., the other is Crosley.

* * *

A LITTLE speculation in private circles has been going on about the automakers also adopting an f.o.b. plant method of selling. High executives of the larger corporations say they do not consider the Cement case or the move by the steel industry to in any way reflect on their method of selling. The last general change in the pricing system of selling cars by the industry, took place in the fall of 1936, when the car companies agreed to the FTC request to stop advertising a list price. Since then they have been using the old list, plus freight and handling expenses, plus taxes as a suggested price to their dealers. They see no reason to change this system. They agree however that FTC, Supreme Court or someone might not agree with them.

Any attempt to put this industry o a rigid f.o.b. plant selling method observers here predict would raise havoc with the whole price structure, and do irreparable damage to the independents who have no far flung assembly plant system. A rigid enforcement of f.o.b. plant car prices would mean that each and every unit would become a personalized cost item, too unworkable to even consider.

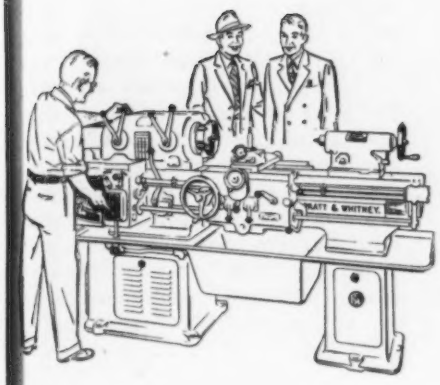
If cars and trucks were ever sold f.o.b. plant the industry would be faced with establishing 112 plant prices. These plants, according to the latest national Automobile Manufacturers Assn. count, are located in 77 cities and are scattered over 24 states. Of this total only 12 plants are within the City of Detroit, 27 more are located in Michigan.

An f.o.b. plant price would preclude many of the independents from competing in remote areas from Detroit in normal times because of freight rates. At the same time the phantom freight collected by all manufacturers with far flung assembly plant systems would vanish. This freight, the car manufacturers claim, does not represent a net gain to them or their dealers. The saving in freight is passed along to the buyer of the car. Some observers dispute that this is true in all cases.

Historically the distribution cost of cars has always been, and still is, much lower than many other items sold on a national basis. Freight, however, is not a negligible item. One independent car maker reported that the freight charges on their models ran from $78.85 to $82.93 per car depending on model from Detroit to New York City. From Detroit to California the freight ranges from $287.42 to $321.48 per car depending on model for this same company.

CAR companies always charge the full freight of the finished car irresective of where the actual parts to be assembled originate, or how these parts are shipped. The difference between actual freight and that charged is appreciable on long hauls. Finished cars are shipped on a rate which amounts to 85 pct of the first-class rate. Such shipments average 13,000 lb for auto box cars. Parts are billed on a rate of 37½ pct of first-class in western territory, 45 pct of first-class in southern territory and 35 pct of first-class in official territory. These shipments weigh from 40,000

# . . . and that's why he bought this particular Lathe!



His name is Bill. He has spent his whole life bossing a toolroom and chasing the elusive "tenth". He's the kind of man we like most to deal with, because he knows what's what in precision machine tools.

His first look at a P&W Model "C" Lathe registered "eye appeal" that any shop man likes. We never said a word as he looked it all over . . . we just motioned him toward the starting button. It was an education to watch him try out this lathe . . . feeling out the controls and speeds — later under light and heavy cuts. He trusted his finger tips, and they told him more than his eyes and ears.

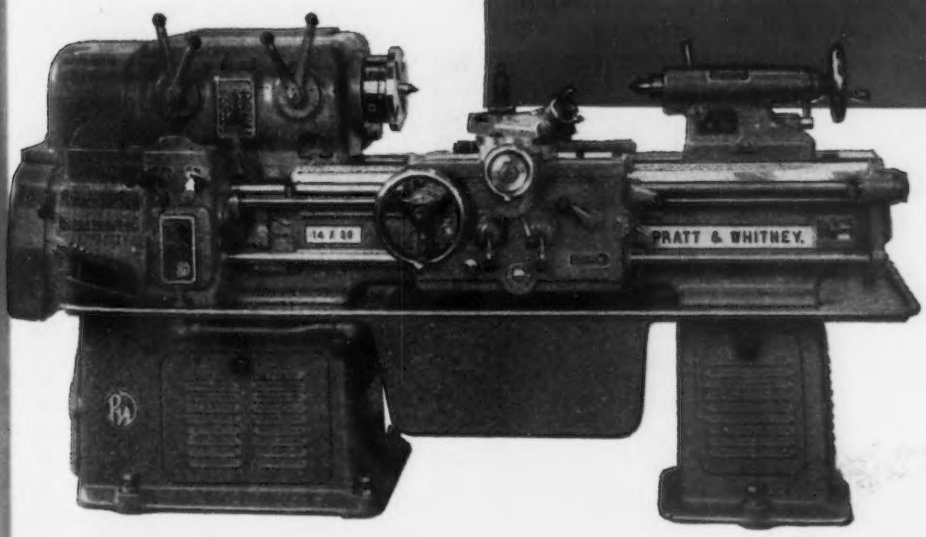
Bill told us afterwards "it had all the old tested qualities that my men like . . . but developed to a new high degree of smooth accurate power."

We believe Bill knows lathes far better than most men. His try-out was the most complete we've ever seen. His decision to revitalize his shop facilities with new Pratt & Whitney Model "C" Lathes means that his wide experience picked this as the best lathe.

**PRATT & WHITNEY**
*Division Niles-Bement-Pond Company*
**West Hartford 1, Connecticut**

## Pratt & Whitney Model "C" Lathe

***The standard by which all fine lathes are judged***





**Literature describing this *high degree* P&W Lathe is yours for the asking.**

to 60,000 lb per railroad car. Often parts are shipped on a commodity rate which is much lower than the standard fifth-class part rate.

Automakers use but one freight rate for a given area in order to simplify their pricing system. That phantom freight collections occur is not denied. The automakers strongly deny, however, that this collection is kept by them or anyway represents a hidden profit. They declare this profit, large or small, is always figured into over-all costs and that the buyer is given the full benefit.

Apparently then, buyers are now paying very close to actual freight rates of the parts themselves which are shipped to assembly points, plus the transportation of the finished cars from the plant to the local dealer's showroom. As such the actual rates do not appear in any billing, but automakers say only actual freight car costs are represented in the final retail price. Shipping methods out of Detroit vary with the seasons. In summer heavy movement of cars from Detroit to Buffalo via water and then truck to dealers is used. Also truck to the Ohio River and then barge to the south and southwest is common.

Just a cursory examination of these facts makes it evident that a strict f.o.b. plant method of selling automobiles would be a very complex problem and a much more difficult task than the new method of selling steel and cement. Long established price brackets into which the different models of the different companies fall, could well be dissolved so that cars which now compete in a certain price class could move up or down depending on dozens of highly complex factors.

* * *

UAW president, Walter P. Reuther, early last week appealed directly to Henry Ford II for renewal of wage negotiations. Previous to that, the union had rejected Ford's last offer of 13¢ an hr, plus some of the fringe demands including an insurance plan. Also the union had voted to strike. Ford immediately accepted Reuther's invitation and negotiations were resumed last Tuesday. Ford and the union agreed on a 13¢ an hour raise with modifications in fringe demands. The latter favored the union. The contract expires July 15, 1949.

Results from the vote taken by NLRB on the question of union shop at Ford was overwhelmingly carried in favor of the plan. Out of the 107,000 hourly workers 98,000 were eligible to vote. Of this group 90,157 workers turned out with 88,943 voting for the union shop.

* * *

Few truck and automobile producers were left holding the old price line last week after Willys-Overland announced increase in all their products except the Jeep. Prices on Willys two and four-wheel drive models and the sedan deliveries, were raised from $55 to $79. James D. Mooney, Willys president, said the company was continuing to, "strive desperately against the price rises on its passenger models including the station wagon and station sedan."

Simultaneous to the other increases a factory list price of $1765 for the new Jeepster convertible was announced. One of the strongest selling points of the Jeepster, according to Welmar G. Roos, vice-president in charge of engineering, "is the best mileage figure of any of our cars, all of which are noted for their economy, and it definitely means something in these days of high fuel and operating costs." The overdrive is standard equipment on the vehicle providing better economy than the engine would ordinarily offer. The car is capable of speeds in excess of 70 mph and has an approximate fuel consumption of 29 miles per gal at 35 mph.

* * *

Aside from the increases in steel prices as a result of f.o.b. mill, automotive glass suppliers have revised the price of safety glass upward by nine pct following an agreement with the USWA, CIO demanding wage increases which average 13¢ an hr and were effective July 16. Salaried employees will receive comparable increases effective the same date. Alltold there are about 12,000 workers effected. Steel consumers here are of the opinion that Great Lakes will come through with a new steel price as soon as the U. S. Steel Corp. points the way.

*MILITARY OFFSPRING: Far different than its military forebear is this descendant of the Jeep, Willys-Overland's new sport phaeton, the Jeepster. It has a total weight of about 2500 lb balanced on a wheelbase of 104 in., carries 5 passengers and gives up to 29 miles per gal of gasoline.*

## Increase Third Calendar Quota of ERP Materials

*Washington*

• • • **A greater proportion** of capital goods and raw materials will be allocated to the Marshall Plan nations during the third calendar (second ECA) quarter.

This was made known by Paul G. Hoffman, Economic Cooperation Administration head, in announcing tentative allocations for the quarter at $1.1 billion. Specific amounts and categories had not been worked out.

Participating countries had requested approximately $1.7 billion but this was scaled down by ECA officials to the announced figure. In making the cuts, Hoffman said, emphasis was placed on food and so-called relief items, leaving the estimates for heavy goods virtually intact.

Included in the $1.1 billion figure were supplementary allotments amounting to $101 million for the quarter. These represent funds for trading between the Marshall Plan nations.

# Washington . . .

EUGENE J. HARDY

**• Basing point legislation a tough problem . . . Sen. Taft suggests amendment of Robinson-Patman Act . . . FTC attorney says switch to f.o.b. mill not necessary . . . ECA encourages U. S. investors .**

WITH Congress back in town talk of legalizing the basing point system is flying thick and fast. But much of this is just that—Washington talk. Concrete ideas are conspicuous by their absence, and seasoned legislators have been backing away from this problem since the original hearings before Senator Capehart, Rep. Ind., brought out the fact that legalizing the basing point system would require drastic overhauling of the anti-trust laws.

However, the return of Congress will speed the work of Sen. Capehart's subcommittee. Originally, the investigation was not scheduled to get underway until sometime during the fall months. As it stands now, much of the preliminary work will be done during the special session.

Before any acceptable legislation is worked out there is much spadework to be done, since tampering with the anti-trust laws could result in a powerful political boomerang.

Up until recent weeks, responsible officials have shied away from making any comment whatsoever on the type of legislation which might turn the trick.

However, Sen. Taft, Rep., Ohio, probably the most influential Republican on the Hill in domestic matters, recently told THE IRON AGE that while he had not given the necessary time to the problem and had no ideas on legislation at this time, he felt that the problem "might have to be approached through amendment of the Robinson-Patman Act."

This is the first public expression from any responsible official as to what type of legislation might take the steel industry and its consumers off the hook. It is considered a sound approach by many attorneys who believe that much of industry's troubles are the result of the Federal Trade Commission's applying the Robinson-Patman Act to situations which Congress did not intend to cover when the act was passed. Most important is the fact that for many years FTC has been nullifying the provision in the act which permits discrimination in good faith to meet competition.

The Ohio Senator further stated that the problem may "be one of price control." The "whole question is one of the important ones on my list for study," he added.

In the Senator's opinion one of the prime questions is: "Did the Supreme Court really encourage competition in the Cement decision?"

"It's not certain," as the Senator sees it, "that the court's opinion will prove an aid to competition."

MEANWHILE, at the Federal Commission it appears that the hearings in the steel case might run into early fall. Additional information is now required by Commission attorneys.

The switch to f.o.b. mill selling by the steel industry did not result in cries of joy from FTC attorney Lynn C. Paulson, who is handling the steel case. Mr. Paulson told THE IRON AGE that as indicated by the proposed cease and desist order (THE IRON AGE, June 17, p. 123), the FTC objective is not exclusive f.o.b. mill selling.

Mr. Paulson believes that U. S. Steel's motives in leading the rush to f.o.b. mill selling were genuine, based on the advice of their attorneys that, as a result of the Cement decision, the corporation could not take the risk, however slight, of being outside the law and opening themselves to treble damage suits. But he does not share the opinion of steel attorneys in their interpretation of the Cement decision. He maintains that this decision does not require exclusive f.o.b. mill selling.

The FTC attorney emphatically states that he sees no reason for a steel price increase as a result of the change in selling methods, and since freight absorption has been abolished he believes there should be some savings passed on to steel consumers.

The Commission intends to push the case to its ultimate conclusion as expressed in the proposed cease and desist order. The first two sections of the order, which require a plant price at every mill and f.o.b. mill selling when requested, appear to have been made unnecessary by the voluntary switch to f.o.b. mill. However, FTC points out that this action has no force of law and a permanent injunction is still necessary.

It is further pointed out that if the voluntary action was accepted by the Commission there would be nothing to prevent the industry from going back to the old exclusive basing point system when the present sellers' market has ended. The third point in the order, requiring the termination of the compilation and distribution of freight rate information, is still considered to be of the utmost importance, since it is held that this alleged arrangement could be used as a device to match prices, regardless of the pricing method being used.

* * *

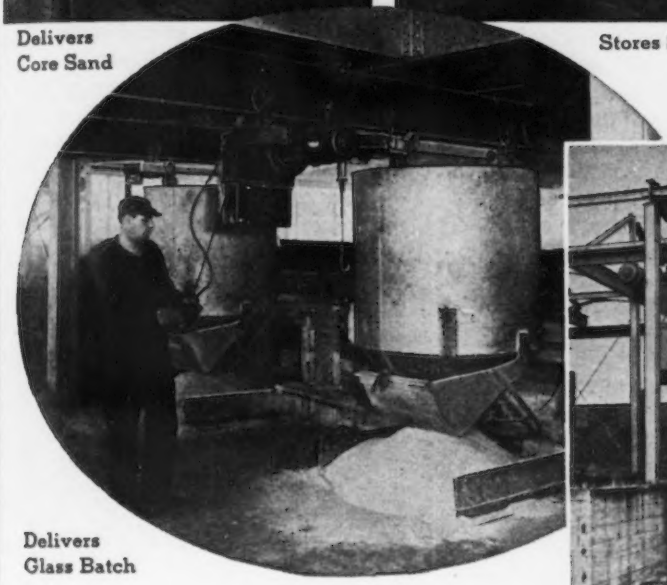
AN added inducement is being held out by the Economic Cooperation Administration to attract American investment in business and industries of the Marshall Plan nations. It offers a 14-year guarantee that returns from such investments will be paid off in American dollars.

In other words, if necessary or

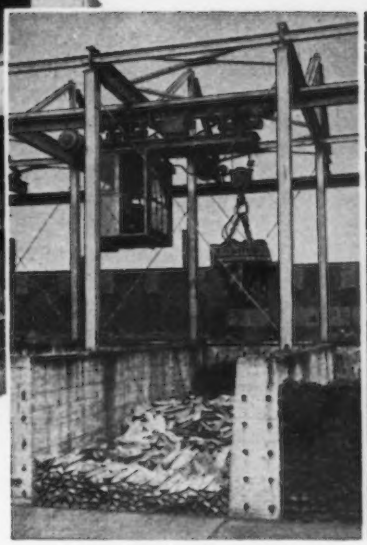
Delivers
Core Sand

Stores Sheet Steel

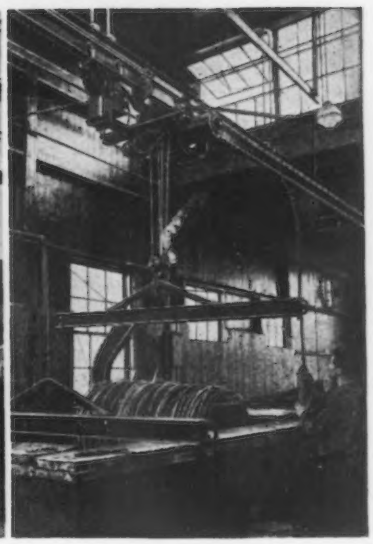
# MONOTRACTORS Do the Hard Jobs



Delivers
Glass Batch



Stores Pig Iron



Cleans Wire Rod

American MonoTractor units perform automatic overhead handling operations with extreme accuracy and reliability. From unloading raw material to shipping finished products, these automatic carriers save costly handling labor by enabling unskilled help to spot heavy and cumbersome loads accurately and safely. American MonoTractors can be applied to carriers operating on any smooth bottom track. Let an American MonoRail Engineer show you how production goes up, handling costs go down when the hard handling jobs are done with American MonoRail MonoTractors and Systems.

SEND FOR BULLETIN C-1.
A 56-page book showing successful applications of American MonoRail Systems.


THE AMERICAN MONORAIL COMPANY

13103 ATHENS AVENUE CLEVELAND 7, OHIO

desired, Uncle Sam will pay off the investor's returns in American dollars and the government will take over the foreign currency at the going rate of exchange. This power will expire under the law on April 3, 1962.

The guarantee has its strings, however. First of all, such investments must have had the prior approval of the ECA. Also, the currency conversion guarantee applies only until returns equal to the amount of the original investment have been received. When the profits begin to roll in, the investor must shift for himself insofar as exchange problems are concerned.

At the same time, the ECA makes it clear that in approving investments abroad and guaranteeing payment in American currency, it is not assuming any responsibility for losses incurred because of either business or political conditions. These are regarded as normal investment risks.

On the other hand, the ECA won't ask any questions as to the source of the returns it may be asked to convert. It makes no difference to ECA whether the proceeds are income from the investment, repayment of the investment in whole or in part, or compensation for sale or other disposition of the property in which the investment is made.

Authority for the currency exchange guarantee is contained in Section 111(b)(3) of the Act of 1948. In order that ECA shall not be called upon to bail out outside interests, to be eligible for such a guarantee the investor must be a citizen of the United States or a business created or incorporated under American laws or owned substantially by United States citizens.

The Act further provides that while as much as possibly $200 million in guaranteed private investments may be sought, no more than $10 million may be approved and guaranteed within the first year after the law was passed.

In return for the guarantee, a few not exceeding 1 pct. per annum may be charged. There is considerable leeway in this respect, however. If "unusual" circumstances make it desirable from ECA's standpoint, a lesser fee may be charged.

Applications for currency guarantees are made to the administrator's office in Washington. They will be processed under ECA Reg. 4 which governs this part of the Act's provisions.

THE BULL OF THE WOODS — BY J. R. WILLIAMS


## Government Proposes Tinplate Export Quota For Last Quarter '48

*Washington*

• • • **A government-proposed** export quota of 113,000 net tons of tinplate, to be shipped during the last quarter of this year, has been outlined to the Tin Plate Industry Committee, the Dept. of Commerce has announced.

Approved foreign orders up to that amount will be supported by ratings (CXS), and must be accepted by tin mills, officials said. All rated tonnages of tinplate are licensed for the preservation of perishable foodstuffs only.

An additional quantity of 14,000 tons may be licensed for export during the fourth quarter, on a nonrated basis. Of this total, 7000 tons may be licensed for the packaging abroad of food to be imported into the United States. The remaining 7000 tons may be licensed for uses permitted under Conservation Order M-43, including use abroad by American petroleum companies.

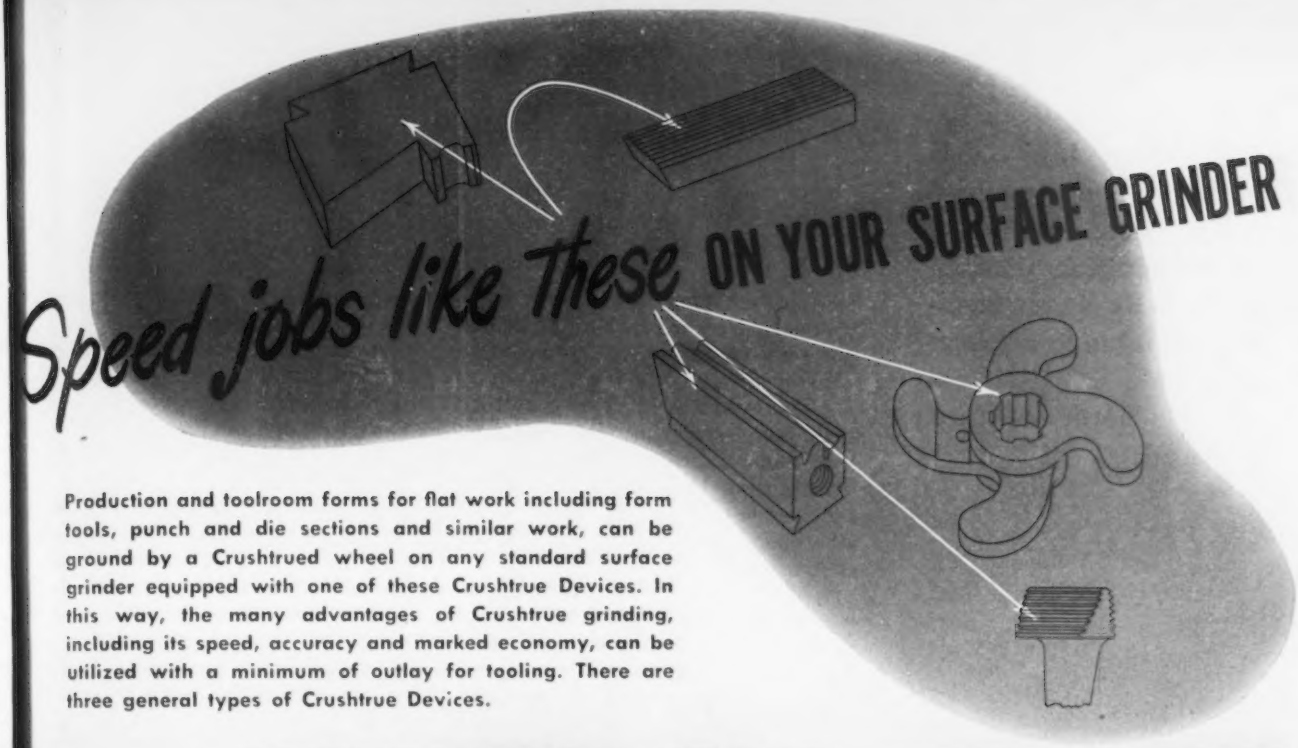
H. B. McCoy, Director of the Office of Domestic Commerce, reviewed briefly the current and anticipated situations in tin supply and demand. He referred to the serious need for additions to the strategic stockpile, and pointed out that there is no prospect of additional allocations of tin to the tinplate industry for a very considerable time, because of this stockpile demand and the fact that tin production during the remainder of this year is uncertain, due to political and social disorders in Malaya. F. H. Hayes, Chief of the Nonferrous Metals Div., ODC, said that unrestricted world demand for tin is estimated at 190,000 tons, as against an estimated maximum production during 1948 of 150,000 tons.

## Surplus Steel Plant Sold

*Washington*

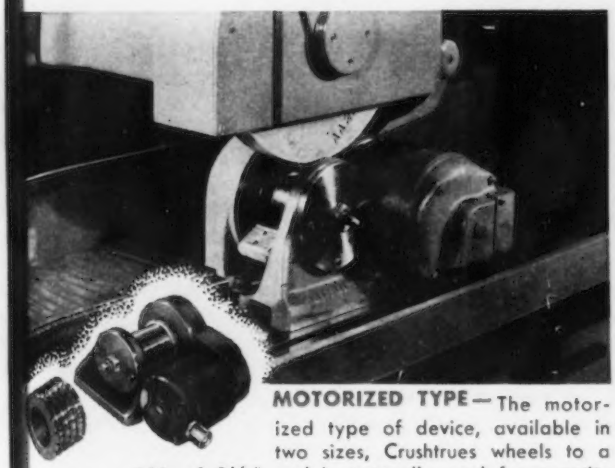
• • • **Crucible Steel Co.** of America has purchased a $2,919,470 surplus steel plant at Midland, Pa. The appraised value was $1,090,000. Sale price was $800,000.

WAA said the plant was a single purpose one for heat treating and cold drawing alloy steel bars.

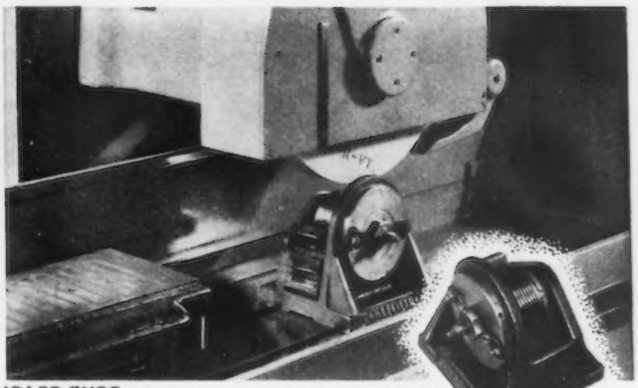


# Speed jobs like These ON YOUR SURFACE GRINDER

**Production and toolroom forms for flat work including form tools, punch and die sections and similar work, can be ground by a Crushtrued wheel on any standard surface grinder equipped with one of these Crushtrue Devices. In this way, the many advantages of Crushtrue grinding, including its speed, accuracy and marked economy, can be utilized with a minimum of outlay for tooling. There are three general types of Crushtrue Devices.**

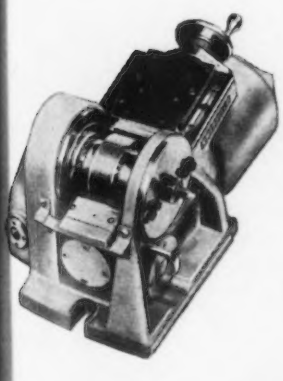


**MOTORIZED TYPE**—The motorized type of device, available in two sizes, Crushtrues wheels to a width of 3⅛" and is generally used for quantity production operations.



**IDLER TYPE**—The idler type is also available in two sizes. The smaller is used on grinders employing wheels up to 1" face. The larger utilizes wheels up to 3⅛" face. The units are generally used on grinders which have a slow speed spindle drive (approximately 300 fpm).

### SELF-TRUING TYPE



The self-truing type is engineered especially for producing parts which must be held to a very high degree of uniformity. It incorporates a flat carbide form tool which is used to periodically reform the cast iron Crushtrue Roll without removing the roll from its mounting.

### CRUSHTRUE ROLLS

Sheffield is prepared to regrind promptly, any Crushtrue Roll after it has become sufficiently worn in service. In addition to that, a large stock of standard rolls is maintained for immediate delivery or in exchange for rolls sent in to be reground. The Bank includes all Standard U.S. threads from 8 to 32 pitch inclusive.

***Sheffield*** **would like to send you new literature describing Crushtrue grinding and its outstanding economic advantages.**

Thread and Form Grinders
Microform and Visualform Grinders
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Crushtrue Rolls and Fixtures
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## the *Sheffield* corporation

**Dayton 1, Ohio, U. S. A.**

2982

# West Coast . . .

ROBERT T. REINHARDT

**• At long last—and probably temporarily—scrap is not prime worry of Washington producers . . . Research facilities available to western industry . . . Refractories of Northwest are explored.**

SEATTLE—For the first time in several months users of steel scrap in the Pacific Northwest are registering complacency over the supply situation.

In spite of the notice recently issued by the federal government to the effect that there will be no more LST's up for sale in the immediate future, both Bethlehem Pacific Coast Steel Corp. and Northwest Steel Rolling Mills report that they have plenty of scrap coming in and expect to have an ample supply for their furnaces for the next 6 months at least.

Todd-Pacific Shipbuilding Corp., which got into the ship-breaking business late, has been scrapping LST's for Bethlehem and is now winding up operations on the last two. Several smaller yards in the area were a year or 6 months ahead of Todd in entering this business which has proven profitable and kept several yards in operation. Bethlehem still has 10 or 12 ships tied up at the Everett Shipbuilding & Drydock yard in Everett, Wash., and is counting on approximately 1,300 tons of scrap from each of these ships to keep its yards full and to help meet the demand of approximately 17,000 tons of scrap needed per month.

Reflecting the availability of scrap, Bethlehem set a new ingot production record in May of 20,604 net tons from its five 50-ton openhearths.

Northwest Steel has been getting abundant scrap but the company has been critical of the size and maintaining 15 burners at work in the yard cutting up ship scrap whereas one man formerly did all of this work.

Rolling capacity in excess of ingot production made a 2 week shutdown at Northwest necessary, during which time all mill employees were given their vacation and the furnaces were kept going to build up an ingot inventory. Last winter because of the scrap shortage and inability of the electric furnaces to keep up with the rolling mill a 2 month shutdown was necessary.

Favorable weather and barge shipping facilities have made it possible for Pacific Associates to bring in a large part of the scrap and salvageable material purchased by them for the federal government in Alaska. Harry Schwartz, manager of Alaska Junk Co., one of the participants in the venture, recently reported he was unable to tell as yet the total quantity of available furnace scrap to be developed from this incoming salvage material. Some estimates have run as high as 50,000 tons, but Mr. Schwartz points out that this is probably an exaggerated figure and that scrap buyers should not become too enthusiastic over the possibility. Much of this material is coming from the island of Attu and Dutch Harbor.

* * *

SEATTLE businessmen who have seen retail sales drop off sharply as a result of the stoppage of the huge payroll of Boeing Aircraft Co. because of the 13-week-long strike of the Aeronautical Mechanics Union last week were encouraged by the return to work movement which has placed approximately 7000 employees back on the job. On one record day 530 persons were hired. This broke the company's wartime hiring record of 295 and succeeding days were repetitious.

According to Boeing officials, the company will need only about 14,000 employees for its permanent work force, to take care of all future business as compared to the almost 19,000 on its prestrike payroll. During the work stoppage Boeing found it profitable and advantageous to subcontract a large amount of machine shop business and learned that such contracts produced parts at figures equal to and, in many cases, below their own cost. Machine shop operators believe they can keep a good share of this business even after the strike is settled.

* * *

REFLECTING an increase in industrial development is a recently issued report on the facilities available for research at the State College of Washington, Pullman, titled "Research for Industry" produced by the Institute of Technology faculty committee headed by Dr. William A. Pearl.

The work of this laboratory gained considerable prominence during the war for its production of light metal castings and its continued research in both aluminum and magnesium. This foundry has produced some of the largest magnesium alloy castings ever poured and has developed welding and assembling techniques for these light metals which are finding wide acceptance in commercial fabrication.

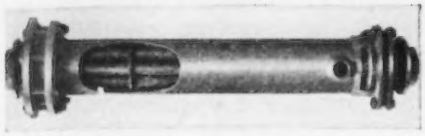
The recently issued report covers all fields of laboratory research including minerals, metalworking, electronics, hydraulics, spectroscopy, machine and product development and wood technology.

The functions of the division of industrial service are to provide contact between industry and research, to furnish information through conferences, clinics or any other convenient educational method, and to publish bulletins on technical subjects of special interest.

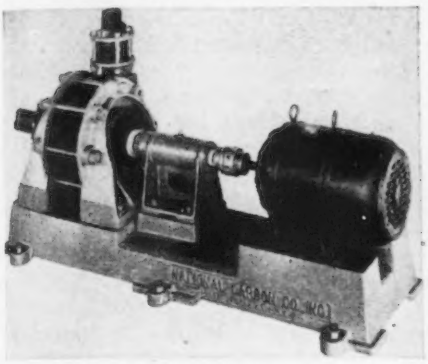
* * *

PORTLAND—According to Dr. Hal J. Kelly, metallurgical engineer, Northwest Experiment Station, U. S. Bureau of Mines, Seattle, the Pacific Northwest is amply supplied with raw materials for

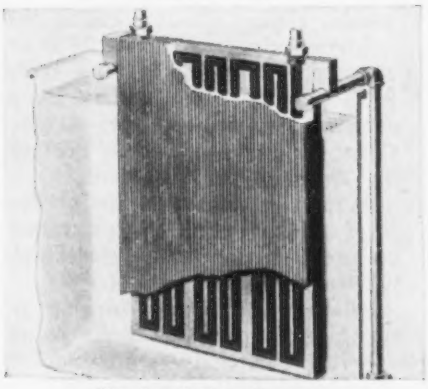
"Karbate" Sectional Cascade Cooler



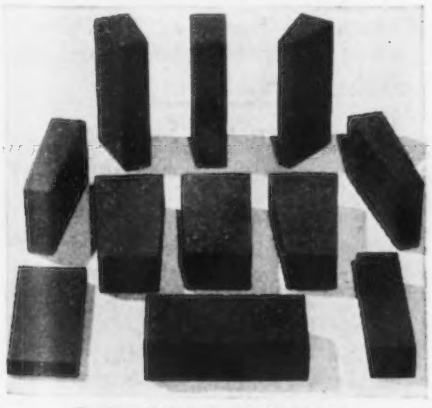
"Karbate" Series 70 Heat Exchanger



"Karbate" Pump



"Karbate" Plate Heater



Carbon Brick for Tank Lining

# How to lick corrosion if you pickle or plate metal . . .

# USE NATIONAL CARBON PRODUCTS

FOR HEATING, cooling, pumping, and conveying the corrosive solutions used in pickling and plating metal, there's no better equipment than that made of "Karbate" brand Impervious Graphite. This material is chemically inert, immune to thermal shock, easy to machine and install, light in weight yet strong; and has a very high heat-transfer rate.

Operating experience has proved that "Karbate" equipment stands up in sulphuric, hydrochloric, and nitric-hydrofluoric pickling solutions . . . Parkerizing and Bonderizing baths . . . nickel, copper, tin, and zinc plating solutions . . . electro-polishing and Alumilite and Alzak processes.

"National" carbon brick is now extensively used for lining tanks that handle corrosive solutions – particularly nitric-hydrofluoric.

For more details on metal-cleaning systems of standard "Karbate" brand Impervious Graphite units and "National" carbon brick, write to National Carbon Company, Inc., Dept. IA.

*These products sold in Canada by Canadian National Carbon Company Limited, Toronto 4*

*The registered trade-marks "Karbate" and "National" distinguish products of*

**NATIONAL CARBON COMPANY, INC.**

*Unit of Union Carbide and Carbon Corporation*

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30 East 42nd St., New York 17, N. Y.

*Division Sales Offices:*
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clay, magnesite, olivine, and chrome refractories and the largest chromite deposit in the United States was found near Columbus, Mont. These conclusions were reported by Dr. Kelly in his talk on refractory materials of the Pacific Northwest presented before the Northwest Industrial Minerals Conference held here recently.

Pointing out that the ascendency of electrical power in the Pacific Northwest and the industrial growth occurring here during the war has resulted in the stimulation of a permanent industrial development, Dr. Kelly indicates that the study of refractory raw materials becomes exceptionally important. The Bureau of Mines has consequently made a thorough study of the deposits of refractory clay in the area.

The speaker indicated that in the country as a whole more than 600 million 9-in. straights, or their equivalents were produced from fire-clay in 1946. Silica brick was second with less than half that amount, about 260 million 9-in. equivalent. Chrome and chrome-magnesia brick totaled 29 million equivalents. Chrome and chrome- was slightly less. The speaker pointed out that it was apparent that the production of clay refractory exceeded the total of all others mentioned by nearly 100 pct. "Since the steel industry uses about 50 pct of all refractories produced in the country, it is likely that the ratio of clay brick to other types of brick used on the Pacific Coast is even higher," the speaker said.

In the Northwest the use of refractories is confined to various types of heating and heat-treating furnaces, boilers, railway, marine and stationary types, chemical plants, smelters, rotary kilns, and waste burners. Since the clay refractories meet most of these demands, only that type is now produced in the Pacific Northwest.

SEVEN of the largest clay deposits of the Pacific Northwest were test drilled by the Bureau of Mines during a wartime search for high-alumina clays and this operation afforded an excellent opportunity to investigate the refractory possibilities of these deposits.

Noteworthy clay deposits were found in Cowlitz, Wash.; Molalla, Ore.; Hobart Butte, Ore.; Five Mile Prairie, Wash.; Excelsior, Wash.; Olson, Idaho; and Whiteware, Mont. Silica and chromite of high quality were also listed.

In summarizing the findings of this survey Dr. Kelly said: "Special refractory materials, such as silicon carbide, and high-alumina depend principally upon manufacture from materials that could be made available here. On the basis of laboratory testing of the seven Northwest clay deposits, those at Whiteware, Mont., are capable of producing superduty refractory clay. Two deposits have reserves of high-heat-duty clay—Hobart Butte, Ore., and Olson, Idaho, and two are principally intermediate-heat-duty deposits—Excelsior and Cowlitz, Wash."

* * *

SALT LAKE CITY—The Utah Power & Light Co. is preparing to wager, in the form of a new capital investment, $61 million that the demand for electric power in this area will increase approximately 75 pct in the next 6 years.

The expansion program of the firm, based on future demands which George M. Gadsby, president, describes as "in sight" calls for a 44,000 kw addition to an existing coal-steam plant to come into the system in 1950; a new 60,000 kw unit to be ready in 1951 and another 60,000 kw unit for 1953. Equipment for the 44,000 kw addition is in process of being delivered or is on the site and the generator for the first of the new 60,000 kw units has been ordered from Westinghouse Electric Co.

The expansion will boost the company's own generating capacity from 200,000 kw to about 350,000 kw. To keep pace with the currently rising demand curve, the company is buying about 25,000 kw of surplus capacity at the Geneva Steel plant and has just signed a contract with Kennecott Copper Corp. for 25,000 kw from its 100,000 kw plant near Bingham.

Industries expected to be the chief factors in the increased power market are steel fabricating, petroleum and fertilizers.

The company is embarking on the large expansion of its steam generating capacity because no new substantial hydroelectric supply is in sight that soon, even if the most optimistic hopes as to Colorado river power development are realized.

*SILVER PLATTER: Arthur G. Gentholts, left, new president, Ohio Manufacturers Association, presents a silver platter to J. C. Argetsinger, vice president and secretary, Youngstown Sheet & Tube Co., who has been president of O. M. A. for 8½ years. Mr. Gentholts is vice president of Truscon Steel Co. Mr. Argetsinger took office as president of O. M. A. in January, 1940, and built up the organization from an obscure debt-ridden body to a position of influence in Ohio industry.*

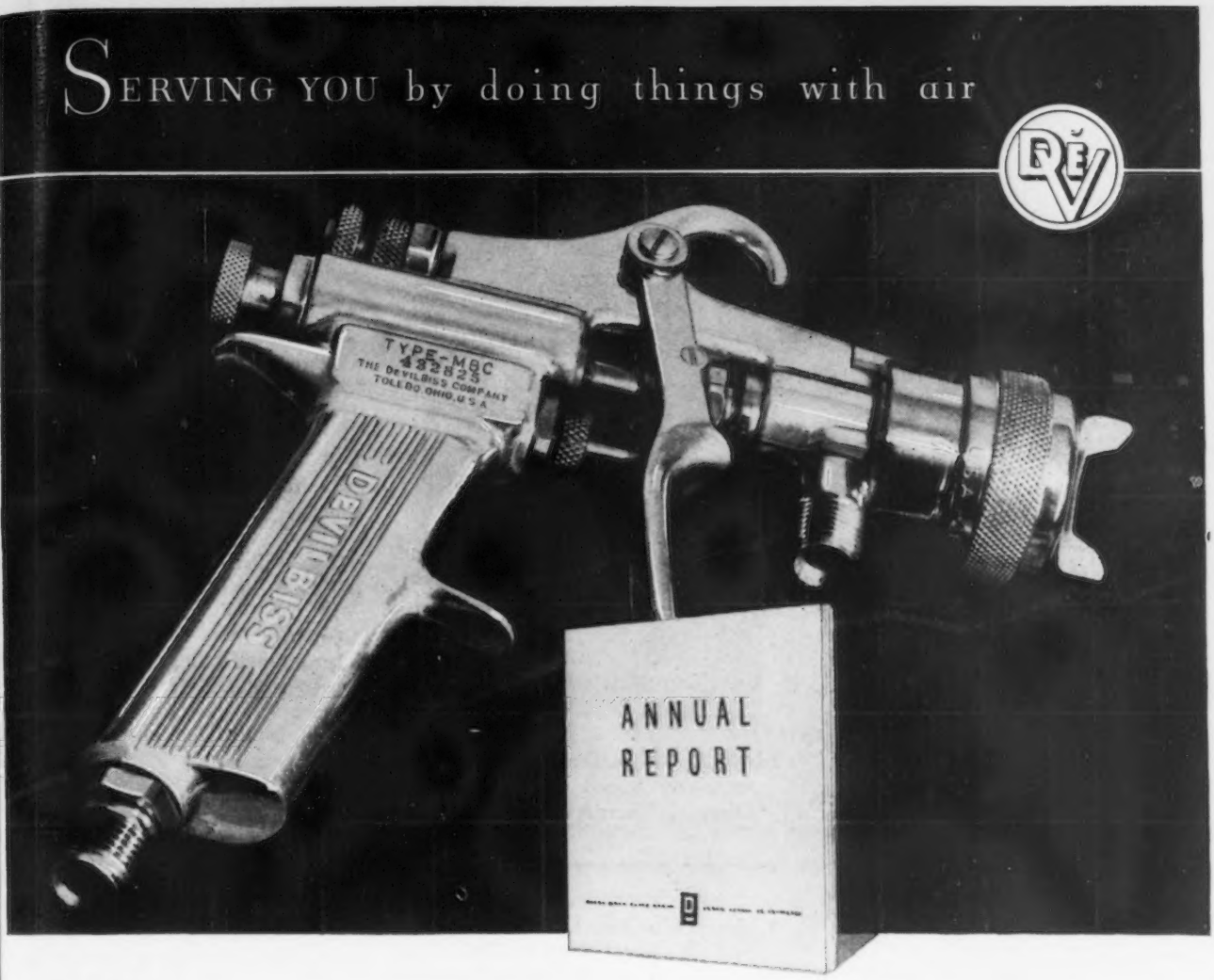
## Long Furnace Shutdown Causes Iron Shortage

*Everett, Mass.*

• • • **The blast furnace** at the Mystic Iron Works here has been shut down to repair cooling plates and reline the furnace wall.

Best delivery on the needed plates is 10 weeks. As a result the furnace will be out of operation for at least three months.

SERVING YOU by doing things with air




# *What place has this gun...in your profit picture?*

True . . . a DeVilbiss spray gun is never present at Directors' Meetings, nor is it prominently pictured in the Annual Report. BUT, whether you realize it or not, it does play a consistent and major part in producing profits.

The unsurpassed speed and efficiency of DeVilbiss spray guns and spray systems help manufacturers to produce for less . . . sell for less . . . and satisfy many more customers. And the beautiful durable product finishes applied the DeVilbiss way help build consumer preference and demand.

If you would like to have your next Annual Report portray a more pleasing profit picture, one good idea would be to consult your DeVilbiss engineer. He'll show you how DeVilbiss equipment conserves manhours . . . eliminates material waste . . . increases production . . . lowers costs and increases profits.

**THE DEVILBISS COMPANY, TOLEDO 1, OHIO**
Canadian Plant: WINDSOR, ONTARIO

# DE VILBISS

*means* **Quality** *in all four . .*

**SPRAY EQUIPMENT**
**EXHAUST SYSTEMS**
**AIR COMPRESSORS**
**HOSE & CONNECTIONS**

# PERSONALS

o o o

• **Hartwell A. Greene** has been named assistant comptroller, Tennessee Coal, Iron and Railroad Co., Birmingham. Mr. Green joined the Tennessee Company in 1943 as supervisor of the Tax Division in the Comptroller's Dept.

• **Arnold H. Smith,** formerly vice-president, has been elected president, Monsanto (Canada), Ltd., Montreal. **L. E. Ryan** has been elected first vice-president. He has been associated with Monsanto (Canada) since its organization, and when it was reorganized in 1946 he was elected vice-president.

• **John F. Parker** has been elected president and treasurer, Iron & Steel Products, Inc., Chicago; **W. J. Parker,** executive vice-president and secretary; **Charles A. Marshall,** vice-president and general manager.

• **George R. Throop, Jr.,** has been appointed Chicago district manager American Zinc Sales Co., St. Louis. Mr. Throop has been connected with the company since 1940 and prior to his Chicago appointment he was located in their St. Louis offices.

• **Robert D. Williams,** has been appointed personnel manager, Tinnerman Products, Inc., Cleveland. Mr. Williams was formerly associated with Chase Brass & Copper Co.

• **Allen L. Chaplin** has been made project engineer, Columbia Chemical Div., Pittsburgh Plate Glass Co. at Natrium, W. Va. Prior to joining Columbia, Mr. Chaplin was associated with General Precision Equipment Co.

• **George R. Brockway** has been appointed sales manager of Rapids-Standard Co., Inc., Grand Rapids He joined the company in 1943 and was formerly assistant sales manager and central regional sales manager. **Lloyd C. Backart,** formerly president and sales manager since incorporation of the firm, continues actively as chairman of the board, experimental consultant, and is responsible for long range planning.

• **Martin B. Uhrich,** has been named engineering manager of Goodyear Tire & Rubber Co.'s Los Angeles plant. Mr. Uhrich has been with the Goodyear company for nearly 30 years and was formerly analyst of equipment maintenance at the Akron plant.

**HARRY WOODHEAD, general manager, Metal Products Div., Douglas Aircraft Co., Inc.**

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• **Harry Woodhead,** reccently made president of Consolidated-Vultee Aircraft Corp., has joined Douglas Aircraft Co., Inc., Santa Monica, Calif., as general manager of new Metal Products Div. **A. W. Larsen,** formerly purchasing director of Consolidated-Vultee, has been appointed Mr. Woodhead's assistant.

• **Thomas G. Tynan,** formerly assistant branch manager, has been named manager of the Boston branch, Electric Storage Battery Co., succeeding **Harry W. Beedle,** who has retired. Mr. Beedle joined the company in Philadelphia in 1900 and was later transferred to the New York operating department and then to Boston as a salesman. In 1935 he was promoted to assistant branch manager and a few months later appointed branch manager. Mr. Tynan joined the company in 1920. **Herbert H. Warren** has been appointed assistant manager of the New York branch. Mr. Warren has been associated wifth the company since 1921.

• **Orville J. Taylor** has been elected to the board of directors of John W. Harris Associates, New York.

• **George H. Deike, Jr.,** has been named secretary and **C. P. Rooney,** assistant treasurer, Mine Safety Appliances Co., Pittsburgh. Mr. Deike will continue as chief engineer of the company, a post he has held since 1941. Mr. Rooney joined the company in 1927 and was appointed assistant secretary in 1940, a position he will retain in addition to his new appointment.

• **William D. Taylor,** who has been associated with Lukens Steel Co., Coatesville, Pa. since 1936, has been named superintendent of the inspection department of Lukens and its divisions, By-Products Steel Co., and Lukenweld. Mr. Taylor was formerly assistant metallurgical engineer.

• **G. William Warner** has retired after 50 years with Allis-Chalmers Mfg. Co., Milwaukee. He joined the company as a machinist and was later named chief inspector of the newly-acquired Scranton plant, the former Dickson Mfg. Co. After joining Allis-Chalmers' main works in Milwaukee as hydraulic inspector, he was named chief inspector for the firm.

• **L. A. Lambing** has been appointed assistant general superintendent, Pittsburgh works, Jones & Laughlin Steel Corp. He was formerly superintendent of the open-hearth and bessemer departments. **D. R. Loughrey,** formerly assistant superintendent of the bessemer department, has been named to succeed Mr. Lambing.

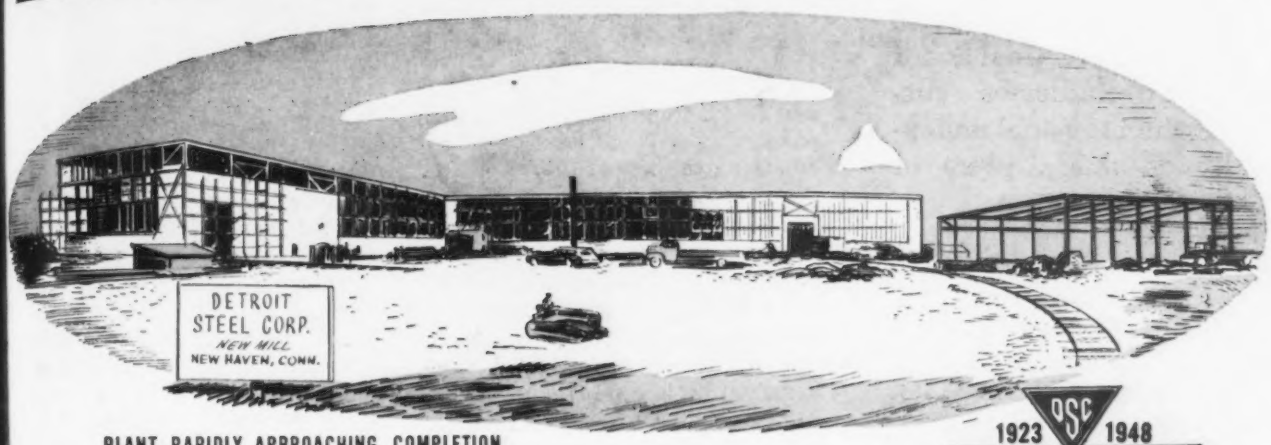
• **Robert W. Frank,** formerly assistant general manager of the general manager of the Lewis Foundry & Machine Div., Blaw-Knox Co., Pittsburgh, has been appointed president and general manager, succeeding **F. E. Walling,** who has resigned.

• **William Brunkala** has been added to the technical staff of Stearns Magnetic Mfg. Co., Milwaukee, as assistant to the physicist and research engineer in charge of the laboratory.

• **Monroe Rule** has been named manager in charge of operations at the National Gypsum Co.'s Kimballton, Va., lime plant. Mr. Rule joined National Gypsum in 1942 and served as plant engineer in Fort Dodge and as manager at Saltville, Va., before being transferred to Kimballton.

(CONTINUED ON PAGE 144)

# MORE STEEL COMING FOR DSC CUSTOMERS

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1923 DSC 1948
25th Anniversary

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**Dependable Dan Our Customers' Man Invites Correspondence Regarding Your Normal and Regular Requirements**

Frankly, we may be unable to accept new business now, but looking ahead, we would like to keep you informed about our expanding facilities.

Now under construction . . . a big, new cold rolled strip mill in New Haven, Conn., scheduled to begin rolling by January 1, 1949 . . . to give Eastern customers 60,000 tons additional producing capacity . . . . practically at their stockroom doors.

Improvements at our Detroit Mill to step up that unit's producing capacity to 150,000 tons a year . . . to increase the supply of cold rolled strip available to Midwestern customers by about 35,000 tons a year.

### *And D.S.C. Reminds You . . . .*

That our Detroit mill . . . our Reliance Division network and our Craine-Schrage Steel Division will continue to do everything possible to keep your production rolling . . giving every account equitable consideration . . . constantly planning and working toward greater production and supply . . . and towards higher standards of steel service.

**DETROIT STEEL CORPORATION**

PRODUCERS OF
COLD ROLLED STRIP STEEL

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**RELIANCE STEEL DIVISION**

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*Products:* SHEETS—Hot Rolled . . . Hot Rolled Pickled . . . Cold Rolled . . . Long Terne . . . Galvanized; PLATES; COLD ROLLED STRIP STEEL—Coils and Cut Lengths . . . Slit or Round Edge . . . All Tempers.

★ ★

**CRAINE-SCHRAGE STEEL DIVISION**

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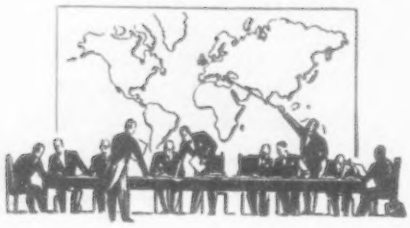
*Sales Offices:* Grand Rapids, Toledo, Indianapolis
*Products:* Cold Drawn and Hot Rolled Carbon and Alloy Steel Bars . . . Tool Steels . . . Drill Rod . . . Wire Rope, etc.

# European Letter . .

**• Nation urgently needs change in management, not ownership, of basic industries . . . Coal Board Report indicates successful industrial nationization many years in the future . . .**



LONDON—The first Annual Report of the National Coal Board has been presented to Parliament. It is undoubtedly a sad misfortune for the Labor government that the first year of their first big nationalization scheme should have to disclose such a very large financial loss on the year's working. The deficit will be exploited to the full by the opposition; from a thousand platforms it will be pointed to as proof that nationalization is a failure. That, of course, is nonsense. No conclusions at all can be drawn from one year's working; and if they could, it would be on the statistics of output, of productivity and of capital expenditure, rather than on the financial results by themselves, that they would have to be based. It will take something more like five years before any fair-minded person will think of making up his mind about the success or failure of nationalization as a system of organizing industry. Nevertheless, the public will scrutinize the report with close attention for signs of how coal nationalization is going.

Nationalization has become so much of an instinct to the Labor party that it is necessary to keep on asking them what they do it for. When the present government was formed, it was suggested in these columns that what this country most urgently needed was not so much a change in the ownership of its basic industries as a change in the way they are conducted. Nationalization is good if, but only if, it opens the way to rationalization. Whenever there is something that clearly needs to be done to an industry, and where public ownership is necessary to do it, then the central core of public opinion will support a proposal of nationalization—provided that the nationalized board, when put in charge, does in fact get on with the job. What is somewhat disconcerting about the progress of the nationalization schemes is not the presence of any portents of disaster but the absence of any signs that anybody knows what purpose they are intended to serve.

PERHAPS this is a little less than fair to the nationalization of coal, since there was, in the Reid Report, a clear statement of the way ahead. Two of the requirements were met: there clearly was a job to be done, and only a publicly owned industry could do it. But is the third requirement being met? Is the job in fact being done? Is the board, having lost Sir Charles Reid, still devoted to the principles of his report? It is difficult to be sure. Yet assurance on this will make all the difference between a judgment of success and one of failure.

*Reprinted from The London Economist by special permission.—Ed.*

In some of the other nationalization schemes, there is not even a Reid Report to go on. Transport nationalization, for example, has brought no disasters. Indeed, one is tempted to suppose that more of the energies of the Transport Commission and its executives have been devoted to finding new titles for old trains than to thinking of any fundamental changes.

The government has probably hitherto carried a majority of the public with it in nationalization schemes. But this public support cannot indefinitely repose on faith alone, works are needed. So far, the books show a debit balance in more than a narrowly financial sense. It may be that, like the National Coal Board's deficit, this debit will be made good in the later years. Let us hope so; but the onus of proof is now very definitely on the nationalizers.

THE next on the list is steel. There are various possible reasons for nationalizing the steel industry. It will serve to show Mr. Bevan's influence on policy. It will infuriate the Tories. It will meet the desire of many Socialists to hurt the fortunate and the successful. It will satisfy others that they are capturing one of the citadels of economic power. All these are reasons that may convince members of the Labor Party. But there is only one reason that would be likely to convince enough of the general public to provide an electoral majority, and that is if it could be shown that a nationalized steel industry would produce better steel more cheaply than a privately owned steel industry. It may be possible to make out a theoretical case for thinking so. But before a theoretical case could be accepted, it would surely be wise to ask whether nationalized boards do in fact act in such a way as to turn potential advantages into realized achievements. And the answer can only be, as yet, that though there is a theoretical case for the nationalization of transport, the Transport Commission and its executives act as if they had never heard of it.

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# AMERICAN PHILLIPS *Screws*

**ALL TYPES**

**ALL METALS: Steel, Brass, Bronze, Stainless Steel, Aluminum, Monel, Everdur (silicon bronze)**

# Industrial News Summary...

- ***Varied Consumer Prices Seen***
- ***Scrap Prices at All-time High***
- ***Steel Composite Up 16.2 Pct***

THE American consumer may soon find a variety of prices on household appliances and other thing made from steel. A combination of the f.o.b. mill system and recent steel price rises have produced a myriad of steel quotations. Depending on where the steel consumer is, the price may be as much as $1 or $2 a ton higher than in other areas—and on top of that the freight needed to get what steel is needed will add to that manufacturer's cost.

In the other case a manufacturer of major appliances may be located near a good source of steel. He will be able to make his product at a much lower price than his competitor who is distant from the mill and who in addition may have to pay a higher mill price. For that reason steel consumers large and small have a big stake in the future trend of plant expansions and rebuilding. So much that it will affect the public far more than is generally believed at this time.

There has been talk of Congress taking action on making the multiple basing point, with its freight equalization, legal—but it has been nothing but talk. Some steel officials believe it will be a long time before the legislators really tackle that dynamite-laden problem. Congress has not, as a rule, fussed around with things that have been decided by the Supreme Court.

One major factor noted last week was that in centers where there is large steel capacity steel prices tended to meet the lowest one named. In other areas where there were few steelmakers the prices on some products were $1 to $2 higher than that charged in major steel areas. Probably the only reason such a price can be obtained is due to the heavy demand for steel. It is not likely that these higher prices will prevail if steelmakers can again compete and are scurrying for business. But that time may still be far away.

STEEL prices on major items are higher at Buffalo, in the East and in some in-between areas than they are at such centers as Pittsburgh, Youngstown, Cleveland and Chicago. Yet even in those areas some steel firms have raised the prices on a few items to new highs because of high costs. All of this means that the consumer will have to spend a lot more time studying his price lists than ever before.

On the more common finished steel products price increases ranged from $9 to $11 a ton. Those producers who showed the least increase were the ones who had not reduced the price a few months ago, or who did not reduce it as much as a few others—such as U. S. Steel. Even so, present sheet, strip and bar prices are the highest since World War I days. But percentagewise increases on those items since before the war do not compare with price increases of other major commodities.

While steelmakers and their customers were trying to make heads or tails out of steel trends, the scrap market moved with a bang. So loud was the bang that the composite price of heavy melting steel hit an all-time high this week. Paced by the strong market in Chicago, which has been rising for 3 weeks, other areas this week went up $2.50 a ton on openhearth grades.

The move came so swiftly that few brokers had time to cover with what information they thought they had ahead of time. It was hoped the raise would bring out more scrap but it is doubtful if the increase will have that effect. More logical is the factor of steel users' pressure for more money for their old material.

STEEL firms were subject to strong pressure from their customers because of higher steel prices. In most cases customers return scrap as a routine matter to the steel company which has been their source of supply for years. But the matter of price has not been routine. The pressure for a higher price for returned scrap broke open the scrap market. Whether the present price will hold depends on whether steel scrap buyers can keep the lid on. Maybe they can and maybe they can't. Time will tell.

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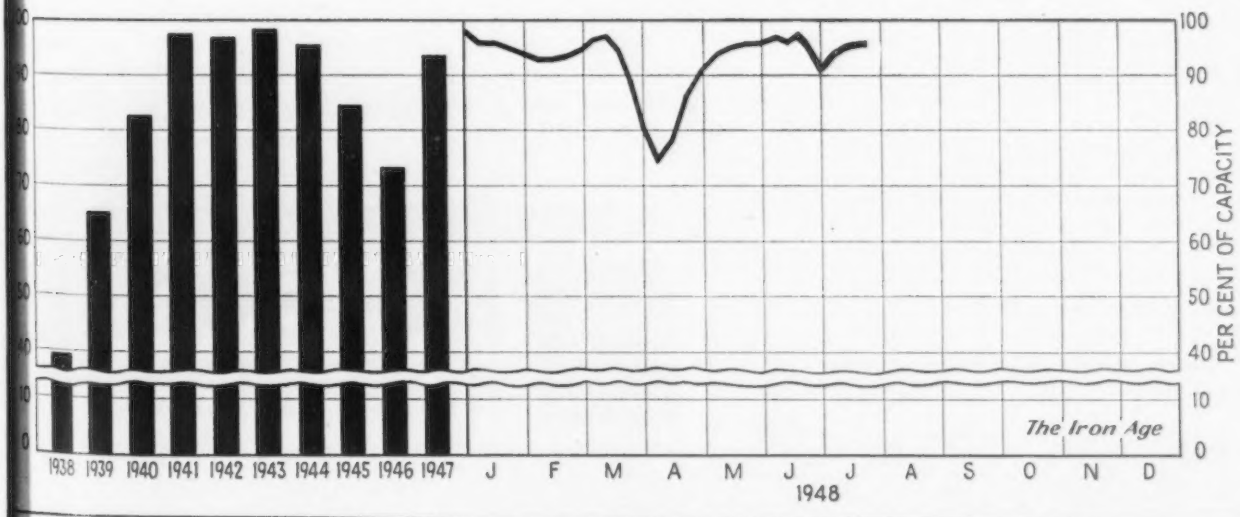


| | Pittsburgh | Chicago | Youngstown | Philadelphia | Cleveland | Buffalo | Wheeling | South | Detroit | West | Ohio River | St. Louis | East | Aggregate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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# Industrial News Summary...

- ***Varied Consumer Prices Seen***
- ***Scrap Prices at All-time High***
- ***Steel Composite Up 16.2 Pct***

THE American consumer may soon find a variety of prices on household appliances and other thing made from steel. A combination of the f.o.b. mill system and recent steel price rises have produced a myriad of steel quotations. Depending on where the steel consumer is, the price may be as much as $1 or $2 a ton higher than in other areas—and on top of that the freight needed to get what steel is needed will add to that manufacturer's cost.

In the other case a manufacturer of major appliances may be located near a good source of steel. He will be able to make his product at a much lower price than his competitor who is distant from the mill and who in addition may have to pay a higher mill price. For that reason steel consumers large and small have a big stake in the future trend of plant expansions and rebuilding. So much that it will affect the public far more than is generally believed at this time.

There has been talk of Congress taking action on making the multiple basing point, with its freight equalization, legal—but it has been nothing but talk. Some steel officials believe it will be a long time before the legislators really tackle that dynamite-laden problem. Congress has not, as a rule, fussed around with things that have been decided by the Supreme Court.

One major factor noted last week was that in centers where there is large steel capacity steel prices tended to meet the lowest one named. In other areas where there were few steelmakers the prices on some products were $1 to $2 higher than that charged in major steel areas. Probably the only reason such a price can be obtained is due to the heavy demand for steel. It is not likely that these higher prices will prevail if steelmakers can again compete and are scurrying for business. But that time may still be far away.

STEEL prices on major items are higher at Buffalo, in the East and in some in-between areas than they are at such centers as Pittsburgh, Youngstown, Cleveland and Chicago. Yet even in those areas some steel firms have raised the prices on a few items to new highs because of high costs. All of this means that the consumer will have to spend a lot more time studying his price lists than ever before.

On the more common finished steel products price increases ranged from $9 to $11 a ton. Those producers who showed the least increase were the ones who had not reduced the price a few months ago, or who did not reduce it as much as a few others—such as U. S. Steel. Even so, present sheet, strip and bar prices are the highest since World War I days. But percentagewise increases on those items since before the war do not compare with price increases of other major commodities.

While steelmakers and their customers were trying to make heads or tails out of steel trends, the scrap market moved with a bang. So loud was the bang that the composite price of heavy melting steel hit an all-time high this week. Paced by the strong market in Chicago, which has been rising for 3 weeks, other areas this week went up $2.50 a ton on openhearth grades.

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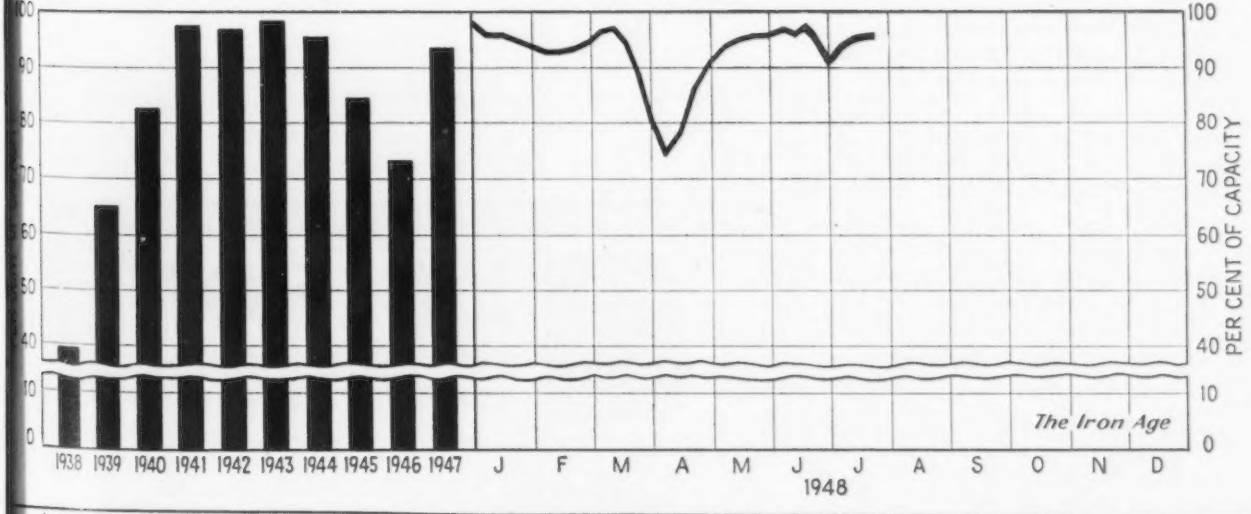


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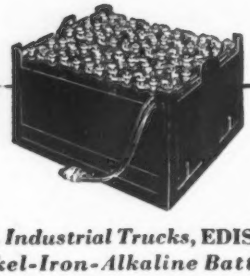
# These Battery Trucks MAKE Money!



***In Industrial Trucks,* EDISON *Nickel-Iron-Alkaline Batteries Give You These Important Advantages***

**They are durable mechanically;** grids, containers and other structural parts of the cells are of steel; the alkaline electrolyte is a preservative of steel.

**They can be charged rapidly;** gassing cannot dislodge the active materials.

**They withstand temperature extremes;** are free from freezing hazard; are easily ventilated for rapid cooling.

**They are foolproof electrically;** are not injured by short circuiting, reverse charging or similar accidents.

**They can stand idle indefinitely without injury.** Merely discharge, shortcircuit, and store in a clean, dry place.

**They are simple and easy to maintain.**

SURE, we put in our battery industrial trucks to economize on operating costs—and they've done that . . . reduced damage and injuries, eliminated demurrage, freed hands for other work. And by tiering stock to the ceiling, they've saved us the expense of building two new storage bays. But more important, they've given us new earning power, increasing our overall plant productivity nearly 25 per cent without a single foot of new floor space.

These battery trucks can keep the pace 24 hours a day every day, and their power characteristics can't be beat: instant starting; quiet operation; no fumes; no power used during stops. And remember, each of their electric motors has only one basic moving part—that means trouble-free operation.

Of course, we've standardized on EDISON Nickel-Iron-Alkaline Batteries for powering them. EDISON has been the most rugged, dependable and long-lasting battery on the market for the past half-century . . . the kind we can bank on to keep our material-handling system—*and our record-breaking production schedule*—right up to snuff!


**EDISON**

***Nickel • Iron • Alkaline***

**STORAGE BATTERIES**

EDISON STORAGE BATTERY DIVISION OF THOMAS A. EDISON, INCORPORATED
West Orange, N. J. In Canada: International Equipment Company, Ltd., Montreal and Toronto

# U. S. Steel Leadership Prepared to Answer Challenges of Critics

## Industry Moves to Discard Its Whipping Boy Role, Avoid Frustrations of Past

o o o

By TOM CAMPBELL
*News, Markets Editor*

o o o

*New York*

• • • **The steel industry** now has a leader—U. S. Steel. What it has done in the past 3 weeks will change the face of the industry. Other steel firms could not do it alone no matter how much they thought it ought to be done. No large steel firm can, for long, charge higher prices than its competitors—and keep its customer relationships which are its life blood.

The simple fact is that the steel industry was far behind the parade in the present inflationary binge. No matter what the critics say the industry was not being fair with its owners or with its future. The anti-inflation experiment of U. S. Steel made that bitterly evident.

These are new times. Wage rates are inflexible. Demand is broader. It involves more people and more industries than ever before. But the inferiority complex which Big Steel has revealed at times towards Washington has not been invigorating. At least that's what some of the steel people who carved a lot of their business out of U. S. Steel's past customer lists have thought for some time.

All that is over the dam. It looks like Ben Fairless is running the show in Big Steel. His recent statements are the fighting kind. Yet they adhere to all the niceties of public relations rules. The corporation is answering back. Last week it made it plain that some other steel companies had not followed U. S. Steel in its price-cut-no-wage-increase experiment.

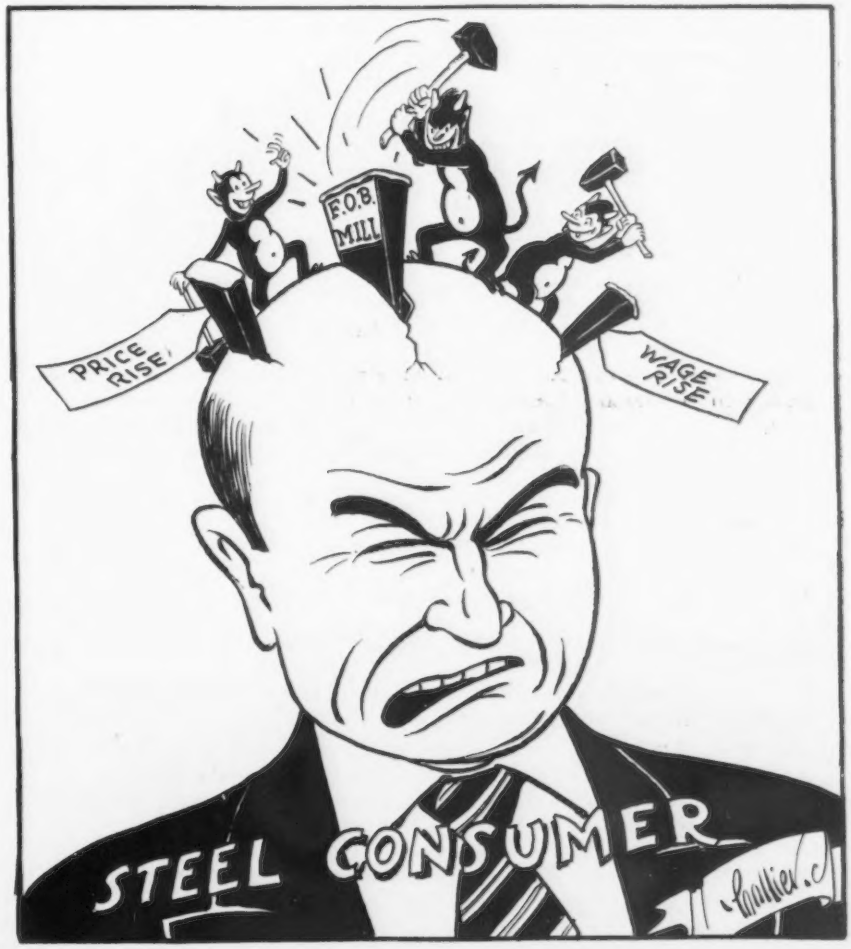
Not that it cared to tell others how to run their business, but a few years ago a somber silence would have filled that part of the text. Charley White of Republic Steel has been shouting his head off that steel prices were not high enough to protect the industry in these shaky times. Now Messrs. White and Fairless are in the same boat—going the same way.

The steel industry will not lose its honor of being the No. 1 whipping boy—regardless of who becomes President of the U. S. But you can only whip a boy so long. Then he either slugs you back or develops a tough hide. U. S. Steel now has a tough hide. So tough that in its statement about prices it makes it quite plain that "these present price increases are made solely to compensate U. S. Steel for increases in its costs of operation due to conditions beyond its control."

Either you believe what Ben Fairless says in his statement or you call him a liar. In adding that choice bit, Mr. Fairless indicated that he knew full well he would have dead cats and whatall thrown at him after the price increases were made known. And he probably knew that before the year was out he might be back on the Washington hot seat explaining patiently that you have to make money if you want to stay in the steel business.

The steel industry had a duzy pulled on it back in 1941. After staggering through some of the worst price wars in its history during 1938-39, and with prices having reached a level which left little or nothing to write home about, that price level was frozen by OPA. Steel firms had been on a lean price diet all through the depression. In

***Modern Migraine***



the war days the relief that steel men claimed was imperative was denied, or was niggardly given.

Yet quality of steel improved, customer requirements became more strict, wage rates went up under strong union leadership and prices fell behind until only a few years ago—when they began to match wage and material increases. Even in the past few years the increases in basic steel do not compare with other basic material price increases. Last week, lost ground was gained after a close and methodical study of steel costs was concluded by Big Steel. Items found to be not profitable were advanced to the point where they are.

There will be no "loss" leaders in steel products for some time to come. There will be no lower steel prices until the expected depression or recession makes its appearance. Even then it is doubtful if there will be any such bargain basement sales as flourished during 1935-39. There can't be. Labor rates are too high and there is no reason to assume that the steelworkers union will agree to drastically lower hourly rates. The speed with which steel companies catch each other at price cutting makes that a useless and profitless pastime.

So with wage rates comparing favorably with any other line of work except coal mining, and with an unfullfilled demand on the books, steel firms have admitted: (1) That these are different times than they thought, (2) that steel equipment is wearing out fast and must be replaced before lower costs will come, (3) that they can not be saviors when others do not want to be saved and (4) that, like Ernest Weir once said, "the only reason for being in the steel business is to sell steel at a profit."

But steel is not going to get by without some loud protesting about (1) f.o.b. mill practices, (2) higher prices and (3) setting a high labor rate which smaller concerns must meet. To all this there can be but one answer, from Big Steel at least —"we tried it the other way and it didn't work." What else can they say?

Force of circumstance, plus years of prodding from the Federal Trade Commission, brought the f.o.b. mill selling practice. The effect will be so varied and so different among steel users that no general conclusions can be laid down. Taken as a whole, the costs to steel consumers will not be large. Yet the costs to some individual steel consumers will be fantastic. So much so that they either will have to go out of business or move their plants. They have no other way out.

But, when attacked on its f.o.b. movement, the steel industry will only shrug its shoulders and point to the Supreme Court. What else could it do? Big Steel now looks as if it can take it and dish it out. It has to if it wants to keep what it has and not lose, as it has in the past, to its competitors.

## Auto Wreckers Will Cooperate To Speed Movement of Scrap

*Washington*

• • • **Members of the** National Auto Wreckers Assn. have pledged full cooperation in support of the concerted drive by the government to stimulate the largest possible flow of iron and steel scrap to the mills, the Office of Industry Cooperation has announced.

In a meeting with Alex Miller, chief consultant of the OIC on scrap, Roy Warshawsky, president of the association, and Joe Altfater, chairman of its scrap committee, stated that the auto dismantling industry would make every possible effort to help increase the movement of scrap.

Pointing out that primarily auto wreckers are in the business of salvaging parts, with scrap being a byproduct of the parts business, Mr. Warshawsky stated that the association could immediately intensify its scrap producing efforts.

It was stressed that wreckers can produce no more scrap than they can process from the cars received in their yards. To increase the number of old cars available for dismantling, it was suggested that local safety inspection regulations be carefully enforced, the general public turn in its worn out cars for salvage, and fleet operators, bus companies, and other large users of cars, buses, and trucks turn in their obsolete vehicles to the wreckers.

Local authorities were also urged to make a drive to rid the nation's streets and vacant lots of abandoned vehicles.

Before the war, the average age of vehicles sent to wrecking yards was 5 years. Today, the average auto is 12 years old before the wrecker gets it. As a result, the wrecking industry is handling approximately 500,000 cars a year while it has facilities to process 3 million vehicles, which would produce approximately 4,500,000 tons of iron and steel scrap.

### Coming Events

**Aug. 30-Sept. 3 American Chemical Society,** national meeting, Washington.
**Sept. 6-10 American Chemical Society,** national meeting, St. Louis.
**Sept. 13-17 American Chemical Society,** national meeting, Portland, Ore.
**Sept. 13-17 Instrument Society of America,** conference and exhibit, Philadelphia.
**Sept. 28-Oct. 1 Assn. of Iron & Steel Engineers,** Convention and Iron and Steel Exposition, Cleveland.
**Oct. 5-7 Industrial Packaging Engineers Assn.,** Industrial Packaging and Materials Handling Exposition, Chicago.
**Oct. 5-9 Concrete Reinforcing Steel Institute,** semiannual meeting, Asheville, N. C.
**Oct. 11-13 National Lubricating Grease Institute,** annual convention, Chicago.
**Oct. 13-15 Porcelain Enamel Institute,** annual forum, Urbana, Ill.
**Oct. 22-25 Metal Treating Institute,** annual meeting, Philadelphia.
**Oct. 23-29 American Society for Metals,** annual convention, Philadelphia.
**Oct. 24-29 American Welding Society,** annual meeting, Philadelphia.
**Oct. 25-28 American Institute of Mining and Metallurgical Engineers, Metals Div.,** annual meeting, Philadelphia.
**Oct. 25-29 National Metal Exposition,** Philadelphia.
**Oct. 27-28 Society for Nondestructive Testing,** annual convention, Philadelphia.

## Steel Price Increases Vary Among Producers; Quotations Not Uniform

*New York*

• • • **The U. S. Steel price** increase did not result in identical prices for the same product in all steel centers. In those areas where there is a heavy concentration of steel mills the lower prices prevail on major steel items. But in other areas such as the East and in the Buffalo territory prices on major steel items are about $1 a ton higher than the U. S. Steel quotation.

On the following pages are the old and new prices for as many steel companies as were available at press time. These lists will prove important as check lists on future changes. In most cases they are f.o.b. the mills of the company listed. Most steel companies will now tell customers just what mills make each item and what the freight rate will be from the mill to the customers' plant.

Steel prices are by no means uniform. In some cases going to an f.o.b. mill system has upped the price slightly in locations that were not formerly basing points. Steel price variations today are due to: (1) U. S. Steel quotations and those of companies which are meeting such prices; (2) prices by steel companies remote from or in territories that are not major steel centers which are $1 or more a ton higher; (3) prices by smaller mills which have quotations higher than the firms following the larger mills; (4) prices on some products which before the increase were high cost —these are higher as mills try to make them pay their own way; and (5) gray market prices which are still somewhat ahead of any of the regular mill prices but which may be affected by the stiffening in mill quotations.

Aside from f.o.b. mill prices steel consumers will pay greater delivered prices because: (1) they may be located far from their sources; (2) they may be in areas where the new prices are higher than the average for larger areas; (3) they may have to go far from their location to get special steels even though they are able to get regular supplies. Details on all steel prices, variations and amount of increases can be found on the following pages.

## J&L Steel Corp. Prices

*Pittsburgh*

• • • **Jones & Laughlin** Steel Corp. announced new steel prices last week. Increases ranged from $8 to $13 a ton on carbon steel products. F.o.b. mill prices before and after the increases were effective are as follows:

**F.O.B. MILL PRICES—J&L**

(All prices cents per lb, unless otherwise noted)

| CARBON STEEL (unless otherwise noted) | Old | New | Increase per ton |
|---|---|---|---|
| Skelp | 2.85 | 3.25 | $8 |
| Structural angles and channels | 2.80 | 3.30 | 10 |
| Junior beams | 2.80 | 3.30 | 10 |
| Junior channels | 2.80 | 3.30 | 10 |
| Spikes | 4.85 | 5.25 | 8 |
| Plates | 2.95 | 3.60 | 13 |
| Floor plates | 4.05 | 4.55 | 10 |
| Bars & small shapes | 2.90 | 3.55 | 13 |
| Reinforcing bars—to fabricators | 2.75 | 3.35 | 12 |
| Reinforcing bars—to consumers | 3.50 | 4.10 | 12 |
| Cold-finished bars | 3.45 | 3.95 | 10 |
| H-R sheets | 2.80 | 3.30 | 10 |
| H-R strip | 2.80 | 3.30 | 10 |
| C-R sheets | 3.50 | 4.00 | 10 |
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| Bright low carbon wire | 3.55 | 4.15 | 12 |
| High carbon spring wire —mastercraft | 4.60 | 5.20 | 12 |
| High carbon spring wire —M B | 4.95 | 5.55 | 12 |
| Nails and staples | 4.60 | 5.20 | 12 |
| Barbed wire | Col. 111 | Col. 123 | 12 |
| Coke tinplate | 6.70 | 6.80 | 2 |
| **OTISCOLOY** | | | |
| Structural angles and channels | 4.20 | 4.95 | 15 |
| Junior beams | 4.20 | 4.95 | 15 |
| Junior channels | 4.20 | 4.95 | 15 |
| Plates | 4.45 | 5.20 | 15 |
| Bars & small shapes | 4.35 | 5.10 | 15 |
| H-R sheets | 4.20 | 4.95 | 15 |
| H-R strip | 4.20 | 4.95 | 15 |
| C-R sheets | 5.20 | 6.05 | 17 |
| C-R strip | 5.30 | 6.05 | 15 |

| TUBE PRODUCTS | Increase per Ton |
|---|---|
| Buttweld, standard & line pipe, reamed & drifted, threaded & coupled: | |
| ½ in. to 1½ in. incl. | $10 |
| 2 in. to 3 in. incl. | 12 |
| Buttweld, extra strong, plain ends—½ in. to 3 in. incl. | 10 |
| Lapweld, standard & line pipe, reamed & drifted, threaded & coupled: | |
| 2 in. to 3 in. incl. | 10 |
| 3½ in. to 4 in. incl. | 8 |
| Lapweld, extra strong, plain ends—2 in. to 4 in. incl. | 8 |
| Seamless casing—all sizes, weights and grades | 10 |
| Seamless tubing—all sizes, and weights in grades H-40 & J-55 | 10 |
| Seamless tubing—all sizes and weights in grade N-80 | 14 |
| Seamless A.P.I. drill pipe—all sizes and weights grade D | 8 |
| Lapweld casing | 10 |
| Lapweld tubing—sizes 2⅜ in. OD and larger | 11 |

## Inland Steel Co. Prices

*Chicago*

• • • **Inland Steel Co.** has announced new f.o.b. mill prices which became effective July 23. Below are the old and new prices with the increases per ton. Said Mr. J. L. Block, Inland Steel sales vice-president, "Recent wage increases and the cumulative effect of price advances in materials and services has necessitated higher selling prices. New prices are f.o.b. cars or trucks, our works, Indiana Harbor, Ind. If material is required f.o.b. boat or barge, our works, Indiana Harbor, Ind., an additional charge of 5¢ cwt will apply. Prices on rerolled rail steel products, furnished on application, will be f.o.b. cars or trucks, our works, Chicago Heights, Ill.

"It will be our policy to conform to customers wishes regarding transportation arrangements if possible. However, due to physical limitations at our works and lack of availability of requested equipment, it will not always be possible for us to comply. In such instances we, of necessity, reserve the right to use an alternate method of transportation in order to assure delivery."

**F.O.B. MILL PRICES—INLAND STEEL CO.**

(All figures cents per lb, unless otherwise noted)

| CARBON STEEL (unless noted othewise) | Old | New | Increase per ton |
|---|---|---|---|
| H.R. sheets—18 ga., heavier | 2.75 | 3.25 | $10 |
| H.R. annealed sheets—19 ga., lighter | 3.65 | 4.15 | 10 |
| C.R. sheets | 3.45 | 4.00 | 11 |
| Inland ti-namel sheets | 6.25 | 6.90 | 13 |
| Enam. iron sheets | 3.75 | 4.40 | 13 |
| Elect. sheets—field, 24 ga. base | 4.40 | 5.15 | 15 |
| Elect. sheets—armature, 24 ga. base | 4.70 | 5.45 | 15 |
| Elect. sheets—electrical, 24 ga. base | 5.20 | 5.95 | 15 |
| Pure iron H.R. sheets, 18 ga., heavier | 3.00 | 3.50 | 10 |
| Galv. sheets | 3.95 | 4.40 | 9 |
| Galv. pure iron sheets | 4.50 | 4.95 | 9 |
| Galv. paint tite sheets | 4.35 | 4.80 | 9 |
| Zinc alloy sheets | 4.10 | 5.05 | 19 |
| H.R. strip | 2.75 | 3.25 | 10 |
| C.R. strip | 3.55 | 4.00 | 9 |
| H.R. bars | 2.85 | 3.35 | 10 |
| H.R. alloy bars | 3.20 | 3.75 | 11 |
| Reinforcing bars | 2.70 | 3.35 | 13 |
| Blooms, billets, slabs—forging | $54 nt | $61 nt | 7 |
| Seamless tube rounds | $70 nt | $76 nt | 6 |
| Carb. steel plates | 2.95 | 3.40 | 9 |
| Inland 4-way floor plates | 3.95 | 4.55 | 12 |
| Carb. struct. shapes | 2.80 | 3.25 | 9 |
| Steel sheet piling | 3.30 | 4.05 | 15 |
| Coke tinplate | 6.70 | 6.80 | 2 |
| Holloware enam. black plate | 4.65 | 4.75 | 2 |
| Std. rails—No. 1 | 2.75 | 3.20 | 9 |
| St. rails—No. 2 accum. with No. 1 | 2.65 | 3.10 | 9 |
| Std. rails—No. 2 only | 2.70 | 3.15 | 9 |
| Joint bars | 3.75 | 4.25 | 10 |
| Tie plates | 3.55 | 4.05 | 10 |
| Track spikes | 4.85 | 5.35 | 10 |
| **INLAND HI-STEEL AND CORTEN** | | | |
| Bars and bar shapes | 4.35 | 5.10 | 15 |
| Plates | 4.45 | 5.20 | 15 |
| Struct. shapes | 4.20 | 4.95 | 15 |
| H. R. strip | 4.20 | 4.95 | 15 |
| H.R. sheets | 4.20 | 4.95 | 15 |
| C. R. sheets | 5.20 | 6.05 | 17 |

## Acme Steel Prices

*Chicago*

• • • **Acme Steel Co.** has raised the price of hot-rolled strip $10 a ton and cold-rolled strip $12 a ton. Prices in cents per lb, f.o.b. their mill, which is Chicago, before and after this price increase follow:

| | Old | New | Increase Per Ton |
|---|---|---|---|
| Hot-rolled strip | 2.80 | 3.30 | $10 |
| Cold-rolled strip | 3.65 | 4.25 | 12 |

## Carnegie-Illinois Steel Prices

*Pittsburgh*

• • • **The following** prices are f.o.b. mill for Carnegie-Illinois Steel Corp. plants. The new prices were effective July 21. They apply only to sizes, shapes, etc., made at each mill. Increases per ton over the old prices in effect before the advance are shown:

SHIPPING PRICES AT ALL MILLS

(All figures cents per pound, unless otherwise noted)

| CARBON STEEL | *Old* | *New* | *Increase per ton* |
|---|---|---|---|
| Ingots—forging | $46 nt. | $50 nt. | $ 4 |
| Blooms, billets, slabs—forging | 54 nt. | 61 nt. | 7 |
| Blooms, billets, slabs—rerolling | 45 nt. | 52 nt. | 7 |
| Skelp | 2.90 | 3.25 | 7 |
| Bars and bar shapes | 2.85 | 3.35 | 10 |
| Hoop—tight cooperage | 3.10 | 3.60 | 10 |
| Floor plates | 4.05 | 4.55 | 10 |
| Plates | 2.90 | 3.40 | 10 |
| CB sections | 2.70 | 3.20 | 10 |
| Standard structural shapes | 2.75 | 3.25 | 10 |
| Reinforcing bars—billet | 2.70 | 3.35 | 13 |
| Bearing piles | 2.70 | 3.20 | 10 |
| Sheet piling | 3.30 | 4.05 | 15 |
| Standard rails No. 1 O.H | 2.70 | 3.20 | 10 |
| Standard rails No. 2 O.H | 2.60 | 3.10 | 10 |
| Standard rails all No. 2 O.H | 2.65 | 3.15 | 10 |
| Light rails | 3.05 | 3.55 | 10 |
| Joint bars for standard rails | 3.75 | 4.25 | 10 |
| Tie plates | 3.55 | 4.05 | 10 |
| Axles | 4.45 | 5.20 | 15 |
| Strip, hot-rolled | 2.75 | 3.25 | 10 |
| Sheets, h.r.—18 gage and heavier | 2.75 | 3.25 | 10 |
| Sheets, c.r.—comm. qual. | 3.45 | 4.00 | 11 |
| Sheets, electric (electrical grade) | 5.20 | 5.95 | 15 |
| Sheets, galvanized | 3.85 | 4.40 | 11 |
| Sheets, galv. flat culvert—copper steel | 4.45 | 5.00 | 11 |
| Sheets, galvannealed | 4.40 | 4.95 | 11 |
| Sheets, long terne, comm. qual. | 4.05 | 4.80 | 15 |
| Sheets—vitrenamel | 3.85 | 4.40 | 11 |
| Roofing, short ternes 8 lb. coated | $15.30 pkg. | $15.50 pkg. | .... |
| Holloware Enameling Black Plate | 4.65 | 4.75 | 2 |
| **HIGH STRENGTH STEEL** | | | |
| *Corten* | | | |
| Bars and small shapes | 4.35 | 5.10 | 15 |
| Plates | 4.45 | 5.20 | 15 |
| C. B. sections | 4.20 | 4.95 | 15 |
| Standard structural shapes | 4.20 | 4.95 | 15 |
| Strip hot-rolled | 4.20 | 4.95 | 15 |
| Sheets hot-rolled | 4.20 | 4.95 | 15 |
| Sheets cold-rolled | 5.20 | 6.05 | 17 |
| Sheets galvanized | 5.90 | 6.75 | 17 |
| *Man-Ten* | | | |
| Bars and small shapes | 3.65 | 4.15 | 10 |
| Plates | 3.95 | 4.45 | 10 |
| C. B. sections | 3.70 | 4.20 | 10 |
| Standard structural shapes | 3.70 | 4.20 | 10 |
| Strip hot-rolled | 3.60 | 4.10 | 10 |
| Sheets hot-rolled | 3.60 | 4.10 | 10 |
| *Abrasion Resisting* | | | |
| Plates | 4.05 | 4.55 | 10 |
| Bars and small shapes | 3.80 | 4.50 | 14 |
| Sheets hot-rolled | 3.90 | 4.40 | 10 |
| Strip hot-rolled | 3.90 | 4.40 | 10 |
| **ALLOY** | | | |
| Ingots | $50 nt. | $51 nt. | 1 |
| Blooms, billets and slabs | 58.93 | 63 nt. | 4.07 |
| Hot-rolled bars | 3.20 | 3.75 | 11 |
| Bar shapes | 3.45 | 4.00 | 11 |
| Plates | 3.70 | 4.40 | 14 |
| Structural shapes | 3.45 | 4.05 | 12 |
| Strip hot-rolled | 4.60 | 5.10 | 10 |

## U. S. S. Subsidiaries Match Pattern Set By the Corporation

*Cleveland*

• • • **The following** are old and new f.o.b. mill prices for American Steel & Wire Co. They cover only sizes, grades, etc., made at the company's mills.

(Cents per lb unless otherwise noted)

| | Old | New | Increase per Ton |
|---|---|---|---|
| Wire Rods, Carbon | | | |
| Donora, Cleveland & Joliet | 2.80 | 3.40 | $12 |
| Worcester | 3.10 | 3.70 | 12 |
| Cold-Rolled Carbon Strip | | | |
| Cleveland | 3.45 | 4.00 | 11 |
| New Haven | 3.95 | 4.50 | 11 |
| Cold-finished Carbon Bars | | | |
| Waukegan, Cleveland and Donora | 3.45 | 4.00 | 11 |
| Cold Rolled Alloy Strip | | | |
| Cleveland | 9.35 | ..... | .... |
| Worcester | 9.65 | ..... | .... |
| Cold-finished Alloy Bars | | | |
| Waukegan, Cleveland and Donora | 4.00 | 4.65 | 13 |
| Worcester | 4.30 | 4.95 | 13 |
| Hot Rolled Alloy Rods | | | |
| Cleveland, Joliet and Donora | 3.20 | ..... | .... |
| Worcester | 3.50 | ..... | .... |
| Cold Rolled Strip— | | | |
| Hi Strength (Corten) | | | |
| Cleveland | 5.00 | ..... | .... |
| Wire—Mfgs. Bright, Low Carbon | | | |
| Joliet, Waukegan, Cleveland, Donora, Duluth & Rankin | 3.45 | 4.15 | 14 |
| Worcester | 3.75 | 4.45 | 14 |
| Spring Wire—High Carbon | | | |
| Waukegan, Cleveland, Donora & Duluth | 4.50 | 5.20 | 14 |
| Worcester, Trenton & New Haven | 4.80 | 5.50 | 14 |
| Flat Wire | | | |
| Cleveland | 4.45 | 5.00 | 11 |
| Worcester | 4.75 | 5.30 | 11 |
| Nails and Staples | | | |
| Donora, Joliet, Rankin and Duluth | Col. 91 | Col. 103 | 12 |
| Worcester | Col. 97 | Col. 109 | 12 |
| Wire—Merchant Quality | | | |
| **Annealed:** | | | |
| Cleveland, Donora, Joliet, Rankin and Duluth | 4.10 | 4.80 | 14 |
| Worcester | 4.40 | 5.10 | 14 |
| **Galvanized:** | | | |
| Cleveland, Donora, Joliet, Rankin and Duluth | 4.55 | 5.25 | 14 |
| Worcester | 4.85 | 5.55 | 14 |
| Wire—Barbed | | | |
| Donora, Rankin, Joliet and Duluth | Col. 111 | Col. 123 | 12 |
| Woven Fence | | | |
| Donora, Joliet, Rankin and Duluth | Col. 97 | Col. 109 | 12 |
| Bale Ties | | | |
| Donora, Joliet and Duluth | Col. 94 | Col. 106 | 12 |
| Fence Posts | | | |
| Duluth | Col. 104 | Col. 114 | 10 |

(Col. refers to columns in price lists)

* * *

*Geneva, Utah*

• • • **The following** are old and new f.o.b. prices for Geneva Steel Co. They are for the sizes and grades made by Geneva's mills:

| PRODUCT | (cents per lb) Old | New |
|---|---|---|
| Carbon structurals | 2.75 | 3.35 |
| Carbon plates | 2.90 | 3.40 |
| Corten plates | 4.45 | 5.20 |
| Manten plates | 3.90 | 4.45 |
| Pig iron, foundry | $40.50 gt. | $43.50 gt. |

*Birmingham, Ala.*

• • • **The following** are old and new f.o.b. mill prices for Tennessee Coal, Iron & Railroad Co.:

(Cents per lb unless otherwise indicated)

| | Ensley | | Fairfield | |
|---|---|---|---|---|
| | Old | New | Old | New |
| Rerolling billets, blooms & slabs.. | $45 nt | $52 nt | $45 nt | $52 nt |
| Forging billets, blooms & slabs.. | 54 nt | 61 nt | 54 nt | 61 nt |
| Wire rods | ..... | ..... | 2.80 | 3.40 |
| HR sheets, 18 ga. and heavier | ..... | ..... | 2.75 | 3.25 |
| HR annealed sheets, 19 ga. and lighter | ..... | ..... | 3.65 | 4.15 |
| CR sheets | ..... | ..... | 3.45 | 4.00 |
| Galv. sheets | ..... | ..... | 3.85 | 4.40 |
| Standard rails | 2.70 | 3.20 | ..... | ..... |
| Light rails | 3.05 | 3.55 | 3.05 | 3.55 |

| | Bessemer | | Fairfield | |
|---|---|---|---|---|
| | Old | New | Old | New |
| HR strip | 2.75 | 3.25 | 2.75 | 3.25 |
| Bars, small shapes | 2.85 | 3.35 | 2.85 | 3.35 |
| Reinforcing bars | ..... | ..... | 2.70 | 3.35 |
| Plates, carbon | 2.90 | 3.40 | 2.90 | 3.40 |
| Standard structural shapes | 2.75 | 3.25 | 2.75 | 3.25 |
| Special tool steel | 9.50 | 9.50 | ..... | ..... |
| Splice bars | ..... | ..... | 3.75 | 4.25 |
| Tie plates | ..... | ..... | 3.55 | 4.05 |
| Track spikes | ..... | ..... | 4.85 | 5.35 |
| Axles | ..... | ..... | 4.45 | 5.20 |
| Track bolts | ..... | ..... | 7.00 | 7.50 |
| Cor-Ten | | | | |
| Hot-rolled sheets | ..... | ..... | 4.20 | 4.95 |
| Hot-rolled strip | 4.20 | 4.95 | 4.20 | 4.95 |
| Bars & small shapes | 4.35 | 5.10 | 4.35 | 5.10 |
| Plates | 4.45 | 5.20 | 4.45 | 5.20 |
| Standard structural shapes | 4.20 | 4.95 | 4.20 | 4.95 |

| Wire Mill Products | Fairfield Old | Fairfield New |
|---|---|---|
| Bright low carbon wire | 3.45 | 4.15 |
| Nails and staples | Col. 91 | Col. 103 |
| Wire, merchant quality: | | |
| 1. Annealed | 4.10 | 4.80 |
| 2. Galvanized | 4.55 | 5.25 |
| Barbed wire | Col. 111 | Col. 123 |
| Woven fence | Col. 97 | Col. 109 |
| Bale ties | Col. 94 | Col. 106 |

* * *

*San Francisco*

• • • **The following** are old and new f.o.b. mill prices for Columbia Steel Co.:

(Prices in cents per lb unless otherwise indicated)

| | Pittsburg | | Torrance | |
|---|---|---|---|---|
| | Old | New | Old | New |
| Carbon structurals | ..... | ..... | 3.35 | 3.85 |
| Tie plates | 3.70 | 4.20 | ..... | ..... |
| Hot-rolled bars | 3.55 | 4.05 | 3.55 | 4.05 |
| Reinforcing bars | 3.30 | 4.05 | 3.30 | 4.05 |
| HR sheets—18 ga. and heavier | 3.45 | 3.95 | 3.45 | 3.95 |
| HR annealed sheets—19 ga. and lighter | ..... | ..... | 4.55 | 5.05 |
| HR drum sheets | 3.45 | 3.95 | 3.45 | 3.95 |
| Galv. sheets | 4.60 | 5.15 | 4.60 | 5.15 |
| Galv. culvert sheets | 5.20 | 5.75 | 5.20 | 5.75 |
| HR strip | 3.50 | 4.00 | 3.50 | 4.00 |
| Well casing sheets | ..... | ..... | 4.25 | 4.75 |

| | Pittsburg Old | Pittsburg New |
|---|---|---|
| Hot-rolled rods | 3.45 | 4.05 |
| Standard nails and staples | Col. 112 | Col. 123 |
| Non-standard nails & staples | 5.60 | 6.20 |
| Annealed merchant wire | 5.05 | 5.75 |
| Galvanized merchant wire | 5.50 | 6.20 |
| Bright basic wire | 4.40 | 5.10 |
| Annealed wire in stones | 8.70 | 9.40 |
| Galvanized wire in stones | 10.20 | 10.90 |
| MB spring wire | 5.80 | 6.50 |
| Columbia spring wire | 5.45 | 6.15 |
| Bright stapling wire | 7.35 | 8.05 |
| Tire bead wire | 10.30 | 11.00 |
| Barbed and twisted wire | Col. 131 | Col. 143 |
| Galv. woven wire fence | Col. 120 | Col. 132 |
| Single loop bale ties | Col. 118 | Col. 130 |

(Col. means column in price list)

## Bethlehem Steel Co. Prices

(Cents per lb unless otherwise noted)

| | Lackawanna | | Sparrows Point | | Johnstown | | Bethlehem | |
|---|---|---|---|---|---|---|---|---|
| | Old | New | Old | New | Old | New | Old | New |
| **Billets, Blooms, Slabs** | | | | | | | | |
| Carbon, rerolling, nt | $45 | $52 | ..... | ..... | $45 | $52 | ..... | ..... |
| Carbon, forging, nt | $54 | $61 | ..... | ..... | $54 | $61 | ..... | ..... |
| Alloy, nt | $59 | $63 | ..... | ..... | $59 | $63 | $59 | $63 |
| **Wire Rods** | | | | | | | | |
| Basic, acid, bessemer, 7/32 to 5/8 in. | ..... | ..... | ..... | ..... | 2.80 | 3.40 | ..... | ..... |
| Basic, bessemer, 7/32 to 47/64 in. | ..... | ..... | 2.90 | 3.50 | ..... | ..... | ..... | ..... |
| **Sheets** | | | | | | | | |
| Hot-rolled, up to 72 in. | 2.80 | 3.30 | ..... | ..... | ..... | ..... | ..... | ..... |
| Hot-rolled, up to 60 in. | ..... | ..... | 2.80 | 3.30 | ..... | ..... | ..... | ..... |
| Cold rolled, 11 ga. and lighter, up to 72 in. | 3.55 | 4.10 | ..... | ..... | ..... | ..... | ..... | ..... |
| 14 ga. and lighter, up to 48 in. | ..... | ..... | 3.55 | 4.10 | ..... | ..... | ..... | ..... |
| Galvanized, 10 ga, up to 48 in. | ..... | ..... | 3.95 | 4.50 | ..... | ..... | ..... | ..... |
| Culvert sheets, galvanized, 16 ga. | ..... | ..... | 4.60 | 5.15 | ..... | ..... | ..... | ..... |
| **Tinmill Products** | | | | | | | | |
| Coke tinplate, 1.50 coating, box | ..... | ..... | $6.80 | $6.90 | ..... | ..... | ..... | ..... |
| Blackplate, Hollowware enameling, 29 to 31 ga. | ..... | ..... | 4.75 | 4.85 | ..... | ..... | ..... | ..... |
| **Strip** | | | | | | | | |
| Hot-rolled | 2.80 | 3.30 | 2.80 | 3.30 | ..... | ..... | ..... | ..... |
| Cold-rolled | 3.55 | 4.10 | 3.55 | 4.10 | ..... | ..... | ..... | ..... |
| **Bars and Bar Shapes** | | | | | | | | |
| Hot-rolled | 2.90 | 3.40 | ..... | ..... | 2.90 | 3.40 | ..... | ..... |
| Reinforcing, billet, to fabs, jobbrs | 2.75 | 3.40 | 2.75 | 3.40 | 2.75 | 3.40 | ..... | ..... |
| Alloy, hot-rolled | 3.30 | 3.85 | ..... | ..... | 3.30 | 3.85 | 3.30 | 3.85 |
| Alloy, cold-drawn | 4.10 | ..... | ..... | ..... | ..... | ..... | 4.10 | ..... |
| **Plates** | | | | | | | | |
| Carbon, sheared, universal, 10 in. and over | ..... | ..... | 2.95 | 3.45 | ..... | ..... | ..... | ..... |
| Carbon, sheared, universal | ..... | ..... | ..... | ..... | 2.95 | 3.45 | ..... | ..... |
| Continuous mill | 2.95 | 3.45 | ..... | ..... | ..... | ..... | ..... | ..... |
| **Structural Shapes** | | | | | | | | |
| Standard sections—Wide flange, BL, BS, BJ, Stand. | 2.80 | 3.30 | ..... | ..... | 2.80 | 3.30 | 2.80 | 3.30 |
| Bar size angles | ..... | ..... | ..... | ..... | ..... | ..... | 2.95 | 3.55 |
| **Mayari "R"** | | | | | | | | |
| Plates, sheared, universal, 10 in. over | ..... | ..... | 4.55 | 5.30 | ..... | ..... | ..... | ..... |
| Plates, sheared, universal | ..... | ..... | ..... | ..... | 4.55 | 5.30 | ..... | ..... |
| Sheets, hot-rolled, up to 72 in. | 4.30 | 5.05 | ..... | ..... | ..... | ..... | ..... | ..... |
| Sheet, hot-rolled, up to 60 in. | ..... | ..... | 4.30 | 5.05 | ..... | ..... | ..... | ..... |
| Sheets | | | | | | | | |
| Cold-rolled, 13 ga, lighter, up to 60 in. | 5.30 | 6.15 | ..... | ..... | ..... | ..... | ..... | ..... |
| Cold-rolled, 14 ga, lighter, up to 48 in. | ..... | ..... | 5.30 | 6.15 | ..... | ..... | ..... | ..... |
| Galvanized, 10 ga, up to 48 in. | ..... | ..... | 6.00 | 6.85 | | | | |
| Strip | | | | | | | | |
| Hot-rolled | 4.30 | 5.05 | 4.30 | 5.05 | ..... | ..... | ..... | ..... |
| Cold-rolled | 5.30 | 6.15 | 5.30 | 6.15 | ..... | ..... | ..... | ..... |
| Structural Shapes, standard and wide flange | ..... | ..... | ..... | ..... | ..... | ..... | 4.30 | 5.05 |
| Standard only | 4.30 | 5.05 | ..... | ..... | 4.30 | 5.05 | ..... | ..... |
| Bars, bar shapes | 4.45 | 5.20 | ..... | ..... | 4.45 | 5.20 | 4.45 | 5.20 |
| Manufacturers' bright wire | ..... | ..... | 3.55 | 4.25 | 3.45 | 4.15 | ..... | ..... |
| High carbon spring wire | ..... | ..... | 4.60† | 5.30† | 4.50 | 5.20 | ..... | ..... |
| MB high carbon wire | ..... | ..... | 4.95 | 5.65 | 4.85 | 5.55 | ..... | ..... |
| **Merchant Wire Products, column numbers** | | | | | | | | |
| Nails and staples, stock items | ..... | ..... | 93 | 105 | 91 | 103 | ..... | ..... |
| Galvanized fence, 9 to 15½ ga. | ..... | ..... | ..... | ..... | 97 | 109 | ..... | ..... |
| Fence posts | ..... | ..... | ..... | ..... | 105 | 115 | ..... | ..... |
| Bale ties, single loop | ..... | ..... | 96 | 108 | ..... | ..... | ..... | ..... |
| Galv. barbed, twisted barbless | ..... | ..... | 113 | 125 | 111 | 123 | ..... | ..... |
| Chicken stays, 17 ga, 4 in. | ..... | ..... | ..... | ..... | 174 | 186 | ..... | ..... |
| Chicken stays, 17 ga, 6 in. | ..... | ..... | ..... | ..... | 171 | 183 | ..... | ..... |
| **Merchant Wire Products** | | | | | | | | |
| Annealed fence wire, 6 to 8 ga. | ..... | ..... | 4.20 | 4.90 | 4.10 | 4.80 | ..... | ..... |
| Galvanized fence wire, 6 to 8 ga. | ..... | ..... | 4.65 | 5.35 | 4.55 | 5.25 | ..... | ..... |
| Annealed stone wire, 16 ga. | ..... | ..... | 7.85 | 8.55 | 7.75 | 8.45 | ..... | ..... |
| Galvanized stone wire, 16 ga. | ..... | ..... | 9.35 | 10.05 | 9.25 | 9.95 | ..... | ..... |
| Nails and staples, non-stock items | ..... | ..... | 4.70 | 5.30 | 4.60 | 5.20 | ..... | ..... |
| **Rails and Track Supplies** | | | | | | | | |
| Standard rails, No. 1* | 2.75 | 3.25 | 2.75 | 3.25 | ..... | ..... | ..... | ..... |
| Standard rails, No. 2* | 2.65 | 3.15 | 2.65 | 3.15 | ..... | ..... | ..... | ..... |
| Light rails, 40 lb and under | ..... | ..... | ..... | ..... | 3.10 | 3.60 | ..... | ..... |
| Light rails, 60 lb per yd | 3.10 | 3.60 | ..... | ..... | ..... | ..... | ..... | ..... |
| Girder rails, No. 1, Steelton, 3.20 3.70 | | | | | | | | |
| Girder rails, No. 2, Steelton, 3.10 3.60 | | | | | | | | |
| Joint bars* | 3.85 | 4.35 | ..... | ..... | ..... | ..... | ..... | ..... |
| Tie plates* | 3.65 | 4.15 | ..... | ..... | ..... | ..... | ..... | ..... |
| Channel line bars for girder rails, Steelton, 4.70 5.20 | | | | | | | | |
| Cut spikes, Lebanon, 4.85 | | | | | | | | |
| Piling, sheet steel | 3.30 | 4.05 | ..... | ..... | ..... | ..... | ..... | ..... |

Pipe and tubing, Sparrows Point, discount reduced 5 points or a price increase of $10.00 a ton.

† Also at Williamsport.

* Also Steelton. Former price at Steelton 10¢ per 100 lb lower than at Lackawanna.

## U. S. Steel Export Co. Reveals New Carbon, Alloy Price Schedule

*New York*

• • • **Upward revisions** in export prices were announced by U. S. Steel Export Co. to conform with domestic price increases made by the U. S. Steel Corp. The increases cover principal carbon and alloy steel products with freight included to New York, Philadelphia or Baltimore. These prices apply on carload lots. They became effective July 21:

**CARBON STEELS**

| | |
|---|---|
| Ingots: | |
| Rerolling quality | $64.13 net ton |
| Forging quality | 65.13 net ton |
| Billets, Blooms and Slabs: | |
| Rerolling quality | 67.13 net ton |
| Forging quality | 76.13 net ton |
| Tube Rounds | 91.13 net ton |
| Rails: | |
| Standard, 61 lbs and over | 81.28 net ton |
| Light, 60 lb and under | 85.99 net ton |
| Skelp | 4.09 100 lb |
| Standard structural shapes | 4.07 100 lb |
| C.B. sections & bearing piles | 4.02 100 lb |
| Plain plates | 4.22 100 lb |
| Floor plates | 5.37 100 lb |
| Hot Rolled Bars | 4.19 100 lb |
| Concrete reinforcing bars | 4.19 100 lb |
| Steel sheet piling | 4.87 100 lb |
| Hot rolled strip | 4.09 100 lb |
| Joint bars for standard rails | 5.49 100 lb |
| Tieplates | 5.49 100 lb |
| Axles | 6.02 100 lb |
| Sheets: | |
| H.R. 18 ga. and heavier | 4.07 100 lb |
| Cold Rolled 15 ga. | 4.82 100 lb |
| Galv., plain, 10 ga. | 5.22 100 lb |
| Galv., corrugated, 10 ga. | 5.32 100 lb |
| Vitrenamel, 12 ga. | 5.22 100 lb |
| Electrical (electrical grade) | 6.77 100 lb |
| Long ternes, 10 ga. | 5.62 100 lb |
| Tinplate No. 107 | |
| American coke 1.25 lb coating | 7.95 base box |
| American coke 1.50 lb coating | 8.15 base box |
| Forrostan—unassorted 0.25 lb coating | 7.15 base box |
| Forrostan—unassorted 0.50 lb coating | 7.35 base box |
| Forrostan—unassorted 0.75 lb coating | 7.55 base box |
| Special coated manufacturing ternes—unassorted | 7.25 base box |
| Manufacturing ternes—unassorted | 7.75 base box |
| Wire Products | |
| Wire rods | 4.16 100 lb |
| Cold rolled strip (.25 carbon and under) | 4.86 100 lb |
| Bright nail wire | 5.01 100 lb |
| Black annealed wire | 5.62 100 lb |
| Galvanized plain wire | 6.07 100 lb |
| Cold finished bars | 4.78 100 lb |
| Bright wire nails | 6.25 100 lb |
| Bright staples 9 ga. | 7.05 100 lb |
| Galvanized staples 9 ga. | 8.00 100 lb |
| Barbed wire | |
| Lyman 4 pt. 5 in. | 6.19 80 rod spool |
| Glidden 2 pt. 4 in. | 5.68 80 rod spool |
| American standard pipe T & C | |
| Buttweld—2½ in. and 3 in. | |
| Black | 116.20 net ton |
| Galvanized | 148.20 net ton |
| Seamless—3½ in. to 6 in. | |
| Black | 130.20 net ton |
| Galvanized | 163.20 net ton |
| English gas tubes T & C | |
| Buttweld—2½ in. and 3 in. | |
| Black | 135.70 net ton |
| Galvanized | 165.60 net ton |

**ALLOY STEELS**

| | |
|---|---|
| Ingots—forging quality | 66.13 net ton |
| Billets, blooms and slabs, forging quality | 78.13 net ton |
| H.R. bars | 4.57 100 lb |
| Plates | 5.22 100 lb |
| Std. structural shapes | 4.87 100 lb |
| H.R. strip | 5.79 100 lb |

**HIGH STRENGTH STEELS**

| | |
|---|---|
| **Corten** | |
| Plates | 6.02 100 lb |
| Std. structural shapes | 5.77 100 lb |
| C.B. sections | 5.77 100 lb |
| H.R. sheets | 5.77 100 lb |
| C.R. sheets | 6.87 100 lb |
| Galv. sheets | 7.57 100 lb |
| H.R. bars and bar shapes | 5.92 100 lb |
| **Manten** | |
| Plates | 5.27 100 lb |
| Std. str. shapes | 5.02 100 lb |
| C.B. sections | 5.02 100 lb |
| H.R. bars and bar shapes | 4.97 100 lb |
| H.R. sheets | 4.92 100 lb |
| **A-R. Steels** | |
| Plates | 5.37 100 lb |
| H.R. bars | 5.32 100 lb |
| H.R. sheets | 5.22 100 lb |

Prices are subject to seller's current list of extras and deductions, and conditions of sale. All sales are subject to seller's price in effect at time of shipment.

* * *

*Pittsburgh*

• • • **National Tube Co.** announced the following advance in mill prices, at which its carbon and alloy products within the range of sizes, grades, finishes, and specifications produced, may be purchased at its plants. These prices will apply on carload lots and became effective on shipments made on or after 12:01 a.m. Wednesday, July 21, 1948:

| Grade | Increase per Net Ton |
|---|---|
| Buttweld standard and line pipe, ½" to 3" | $10 |
| Seamless standard and line pipe | 10 |
| Seamless casing, all grades | 10 |
| Seamless oil well tubing, grades H-40 and J-55 | 11 |
| Seamless oil well tubing, grade N-80 | 15 |
| Seamless drill pipe | 8 |
| Seamless mechanical and pressure tubing—Prices will be adjusted proportionately | |

## Weirton Steel Co. Prices

*Weirton, W. Va.*

• • • **The following are** f.o.b. mill prices for Weirton Steel Co. before and after the recent price increase announced last week.

**F.O.B. MILL PRICES—WEIRTON STEEL CO.**

(All figures in cents per lb, unless otherwise noted)

| CARBON | Old | New | Increase per ton |
|---|---|---|---|
| Bars | 2.90 | 3.35 | $ 9 |
| Plates | 2.95 | 3.40 | 9 |
| Shapes | 2.80 | 3.25 | 9 |
| H-R strip | 2.80 | 3.25 | 9 |
| H-R sheet | 2.80 | 3.25 | 9 |
| C-R strip | 3.45 | 4.00 | 11 |
| Galv. sheets | 3.95 | 4.40 | 9 |
| Long ternes | 4.05 | 4.80 | 15 |
| Weirzin strip | 3.45 | 4.00* | 11 |
| Weirzin sheets | 4.55 | 5.00† | 9 |
| Tinplate—box | $6.70 | $6.80 | 2 |

* Plush coating extra.
† Includes coating.

## Youngstown Sheet & Tube

*Youngstown*

• • • **Following are** f.o.b. mill prices for Youngstown Sheet & Tube Co. before and after the recent increase. Also shown is the raise per ton. New prices were effective late last week.

**F.O.B. MILL PRICES—YOUNGSTOWN SHEET & TUBE CO.**

(All figures cents per lb, unless otherwise noted)

| CARBON—(unless otherwise indicated) | Old | New | Increase per ton |
|---|---|---|---|
| H-R bars | 2.90 | 3.35 | $9 |
| H-R alloy bars | 3.30 | 3.75 | 9 |
| C-R bars | 3.55 | 4.00 | 9 |
| H-R sheets | 2.80 | 3.25 | 9 |
| H-R strip | 2.80 | 3.25 | 9 |
| C-R sheets | 3.55 | 4.00 | 9 |
| C-R strip | 3.55 | 4.00 | 9 |
| Enameling sheets | 3.95 | 4.40 | 9 |
| Plates | 2.95 | 3.40 | 9 |
| Wire rods | 3.05 | 3.65 | 12 |
| Mfg. wire | 3.55 | 4.15 | 12 |
| Holloware black plate | 4.65 | 4.75 | 2 |
| Tinplate | 6.70 | 6.80 | 2 |
| **PIPE** | | | |
| Buttweld pipe, ½ in. and up | | | 10 |
| Line pipe—all | | | 10 |
| Oil casing—all | | | 9 |
| Drill pipe—all | | | 6 |
| **YOLOY** | | | |
| H-R sheet & strip | 4.30 | 4.95 | 13 |
| C-R sheet | 5.30 | 6.65 | 15 |
| H-R plates | 4.55 | 5.20 | 13 |
| H-R bars | 4.45 | 5.10 | 13 |
| Shapes | 4.30 | 4.95 | 13 |

## Armco Steel Prices

*Middletown*

• • • **The following are** f.o.b. mill prices for Armco Steel Corp. before and after recent price increases.

**F.O.B. MILL PRICES—ARMCO STEEL CORP.**

(All figures in cents per lb, unless otherwise noted)

| CARBON | Old | New | Increase per ton |
|---|---|---|---|
| H-R sheets | 2.80 | 3.25 | $ 9 |
| C-R sheets | 3.50 | 4.00 | 10 |
| H-R strip | 2.80 | 3.25 | 9 |
| C-R strip | 3.50 | 4.00 | 10 |
| Enameling iron sheets | 3.85 | 4.40 | 11 |
| H-R bars | 2.90 | 3.35 | 9 |
| Long ternes | 4.05 | 4.80 | 15 |
| Galvanized sheets | 3.95 | 4.40 | 9 |
| Electrical sheets (elec.) | 5.30 | 5.95 | 13 |
| Elect. sheets (trans 72) | 7.25 | 8.05 | 16 |

## Great Lakes Steel Prices

*Detroit*

• • • **Great Lakes** Steel Corp. has advanced steel prices $9 to $11 a ton. A comparison of the former and the new prices, f.o.b. mill, cents per lb follows:

| PRODUCT | Old Price | New Price | Increase per Ton |
|---|---|---|---|
| H.R. sheets | 3.00 | 3.45 | $9 |
| C.R. sheets | 3.65 | 4.20 | 11 |
| Enam. sheets—12 ga. | 4.15 | 4.70 | 11 |
| H.R. strips | 3.00 | 3.45 | 9 |
| C.R. strips | 3.65 | 4.20 | 11 |
| Carbon bars | 3.10 | 3.55 | 9 |
| C.F. bars | 3.75 | 4.30 | 11 |
| Carbon steel plates | 3.20 | 3.65 | 9 |
| **HIGH TENSILE NAX:** | | | |
| Plates | 4.90 | 5.65 | 15 |
| H.R. sheets | 4.50 | 5.25 | 15 |
| C.R. sheets | 5.50 | 6.35 | 17 |
| H.R. strips | 4.50 | 5.25 | 15 |
| C.R. strips | 5.50 | 6.35 | 17 |
| H.R. bars | 4.65 | 5.40 | 15 |

# Voluntary Allocation Program Extended to Include Military Steel

*Washington*

• • • **The voluntary** allocations program moved into the military field last week with approval by the Steel Products Advisory Committee of a voluntary agreement to provide 105,273 tons of steel products monthly through Feb. 28, 1949, to meet armed forces requirements. This allocation is designed to provide steel products at an annual rate of 1,269,000 tons—the amount designated by the armed forces as necessary to meet requirements during the current fiscal year.

Officials of the Office of Industry Cooperation told THE IRON AGE that of this total amount approximately 199,000 tons are alloy steel products and the remaining 1,070,000 tons is made up of carbon steel products. An approximate breakdown of the carbon steel allocation is as follows: sheet and strip, 26.5 pct; hot and cold rolled bars, 22 pct; structural shapes, 13 pct; pipe, 12 pct; ingots, 10 pct; wire rods, 6 pct; tubing, 4 pct; castings, 3 pct; rails and accessories, .6 pct; tinplate, .4 pct; and wheels and axles, 2.5 pct.

Under the proposed agreement for the armed forces steel will be made available to armed forces procurement agencies and to persons needing steel to fill military contracts. This applies to subcontracts as well as prime contracts, provided they have been designated by the armed forces as entitled to benefits of the voluntary plan.

Orders from eligible consumers will carry an official armed forces contract number, in effect a military rating, and a certification that the steel will be used only in producing materials for the armed forces. Consumers may use the proposed agreement only when and to the extent that they have insufficient supplies of steel for their military contracts.

The Steel Products Committee action is still subject to approval by the Steel Producers Advisory Committee. A public hearing is also scheduled for Aug. 3. However, a steel task committee has already begun to parcel out the allocation to individual mills.

Additional programs approved by the Committee included.

## Agreement Calls for 1.2 Million Tons Annual Allocation for Military Uses

(1) An agreement providing 16,529 tons of steel monthly through Feb. 28, 1949, for the oil field tank and production equipment industry. Items to be produced under this program include oil and gas separators, heaters, emulsion heaters, bolted storage tanks and welded production tanks used at well head. Broken down the tonnage for this industry is as follows: sheet, 8300 tons; plate, 5869 tons; structural shapes, 1818 tons; and pipe, 542 tons.

(2) An agreement providing approximately 20,000 tons of steel monthly through Feb. 28, 1949, for the production and repair of wet and dry cargo barges. This tonnage consists primarily of plates and structural shapes, the former accounting for about 75 pct of the total. A small amount of bars and sheet is also included.

(3) An agreement providing approximately 2500 tons of steel monthly through Feb. 28, 1949, to the anthracite coal industry for maintenance and repairs. This tonnage is composed of structural shapes, light rails, and pipe.

The advisory committee also urged the extension of Public Law 395, under which voluntary agreements are worked out, beyond the present expiration date of March 1, 1949. In addition, it requested that action be taken to permit the hiring of $1-a-year men for administrative and operating jobs in OIC.

In connection with a proposal that the steel industry consider a voluntary agreement to require certification of usage by purchasers of oil country goods, the committee expressed the view that "the steel industry cannot supervise the ultimate distribution and use of oil country goods once the material passes into the hands of consumers."

The committee discussed a proposal for a more equitable distribution of steel products, intended principally to alleviate small business hardship cases and passed the following resolution:

"It is the sense of the Steel Products Advisory Committee that all points covered by OIC's 'Suggestion for Possible Voluntary Methods of Promoting Equitable Distribution of Steel' are now, to whatever degree is practicable, being carried out, and the individual members of this industry will continue this practice. We agree with the objective proposed but cannot agree to be bound by a specific set of regulations which cannot possibly provide for all the variables which need to be considered in any individual allotment program."

## Increase Plate Prices

*Philadelphia*

• • • **Three producers** of plates in eastern Pennsylvania advanced prices last week. Lukens Steel Co. initiated the action on July 19 with a $6 a ton increase on carbon and alloy plates bringing prices at Coatesville to $3.75 and $5.10 per 100 lb, respectively. Worth Steel Co. followed on July 22 with an equal increase on carbon plates and flanged or dished heads, bringing plate prices to $3.95 and flange shop products to $3.75, Claymont. Central Iron & Steel Co. raised its price by $15 a ton effective July 21 to a price of $5.85 f.o.b. Harrisburg. Central plates were formerly sold at $5.10 on a Coatesville base.

## Pittsburgh Steel Raises Prices and Goes F.O.B.

*Pittsburgh*

• • • **J. H. Carter,** president, Pittsburgh Steel Co., July 22 announced the elimination of the multiple basing point method of selling and the establishment of f.o.b. mill base prices, and an average increase of approximately 11½ pct in steel prices, effective at 12.01 A.M. Friday, July 23.

Mr. Carter paid, the increase in steel prices was necessary due to high costs the company has encountered in recent substantial increases in wages, freight, coal, ore, scrap and certain other raw materials which are required for steel production.

# Construction Steel . . . .

*New York*

• • • **The estimated total bookings** of fabricated structural steel for the month of June, according to reports received by the American Institute of Steel Construction, Inc., were 158,270 tons, or 15 pct greater than the bookings for the preceding month. Bookings for the first six months of the year totaled 952,235 tons or 25.6 pct over the bookings reported in the same period of 1947, and 37.7 pct over the first half year bookings in the five prewar years 1936-1940.

June shipments were reported at 147,697 tons. Shipments for the first six months amounted to 948,030 tons, some 7.8 pct greater than for the corresponding period of last year.

Following is the complete tabulation of bookings and shipments:

**ESTIMATED TOTAL TONNAGE FOR ENTIRE INDUSTRY**

| | 1948 | 1947 | Av. 1936-40 |
|---|---|---|---|
| **Contracts Closed** | | | |
| January | 160,634 | 104,973 | 107,578 |
| February | 130,119 | 125,881 | 96,280 |
| March | 213,123 | 149,634 | 124,558 |
| April | 152,454* | 161,338 | 110,783 |
| May | 137,635* | 112,954 | 126,237 |
| June | 158,270 | 103,273 | 125,835 |
| Totals | 952,235 | 758,053 | 691,271 |
| **Shipments** | | | |
| January | 146,363 | 140,650 | 92,578 |
| February | 141,556 | 136,126 | 88,626 |
| March | 167,029 | 137,799 | 115,031 |
| April | 165,732* | 157,392 | 123,650 |
| May | 179,653* | 154,980 | 123,225 |
| June | 147,697 | 151,882 | 129,969 |
| Totals | 948,030 | 878,829 | 673,079 |
| Tonnage Available for Fabrication Within Next 4 Months | 647,474 | 634,209 | 347,930 |

* Revised.

# 50 YEARS AGO

THE IRON AGE, *July 28, 1898*

• "Michael G. Mulhall, the well-known English statistician, has published a comparative statement of the wealth of the principal nations of the world. He notes that while most of the European countries have attained their growth, and some are going backward, the U.S. is apparently on the threshold of an industrial development which it has never dreamed of before.

• "On the New York City elevated railroad lines it must not be taken for granted that steam will soon give way to any other form of motive power. Although electric motive power on the elevated lines would offer certain advantages to both the public and owners of the property, there are sound mechanical reasons for hesitation before installation of such a system."

• "The foundry trade is undergoing a period of transition. Manufacturers of foundry equipment are quite busy in remodeling old foundries and fitting up new ones. Builders of improved foundry appliances are meeting with so much encouragement in introducing their specialties that they confidently look forward to a year or two of decided activity."

• "The American Steel & Wire Co. of Chicago have submitted a new scale of wages to the employees of their wire, nail and galvanizing mills at Anderson, Ind. They have closed down the mills until the men accept. Although the new scale is lower, it is claimed that new machinery will enable the men to earn just as much."

• "Men of great business sagacity look back with regret to many things done during the stress of hard times. When business fell off many things were attempted in shear desperation. Efforts to secure greater economy, increase output, reduce prices, increase territories, secure customer favor and increase variety of output, were made by most manufacturers, but few happened to strike the right method."

• • • **Fabricated steel awards** this week included the following:

**8500 Tons,** East Boston, Mass., Express Highway, through V. Barletta Co., Boston, Mass., to Harris Structural Steel Co., Inc., New York.

**2000 Tons,** Chicago, manufacturing building for the International Rolling Mills Co., to American Bridge Co., Pittsburgh.

**480 Tons,** Philadelphia, new senior high school, Philadelphia, to Bethlehem Steel Co., Bethlehem.

**475 Tons,** Newfane, N. Y., Central School, through the John W. Cowper Co., Inc., Buffalo, general contractor, to Ernst Iron Works, Inc., Buffalo.

**320 Tons,** Georgetown, N. D., State Highway Bridge Section 6646 to American Bridge Co., Pittsburgh.

**200 Tons,** Somerville, Mass., additions and alterations, W. T. Grant Co., store through Fritz Construction Co., Roxbury, Mass., contractors, to West End Iron Works, Cambridge, Mass.

**140 Tons,** Duluth, State Highway Bridge Section 6665 to American Bridge Co., Pittsburgh

• • • **Fabricated steel inquiries** this week included the following:

**11,000 Tons,** Los Angeles, transmission towers for the city of Los Angeles.

**4500 Tons,** Indianapolis, building for Western Electric Co.

**500 Tons,** Chicago, 1949 bridge building program for the Great Northern Railroad system.

**190 Tons,** Prairie, Mont., State Highway Bridge Section F-1-130-14.

**185 Tons,** Normal, Ill., educational building for Illinois State Normal College, John Felmley & Son, low bidder.

• • • **Reinforcing bar inquiries** this week included the following:

**3500 Tons,** Odair, Wash., miscellaneous construction at Grand Coulee Dam, Bureau of Reclamation, Denver, Spec. 2329, bids to Sept. 1.

**210 Tons,** Los Angeles, overcrossing on Hollywood Parkway at Spring St., California Div. of Highways, Los Angeles, bids to Aug. 12.

**105 Tons,** San Francisco, pavement at San Francisco Airport, Airport Contract 109, Public Utilities Commission, San Francisco, bids to Aug. 10.

• • • **Reinforcing bar awards** this week included the following:

**1500 Tons,** Philadelphia, new senior high school, City of Philadelphia, to Bethlehem Steel Co., Bethlehem.

**250 Tons,** Medford, Mass., B & M Realty Co., building to Truscon Steel Co., Cleveland.

• • • **Plate steel pipe awards** this week included the following:

**560 Tons,** San Francisco, Purchaser of Supplies, San Francisco, Inv. 4401, to Consolidated Western Steel Corp.

## Spang Raises Pipe Prices

*Pittsburgh*

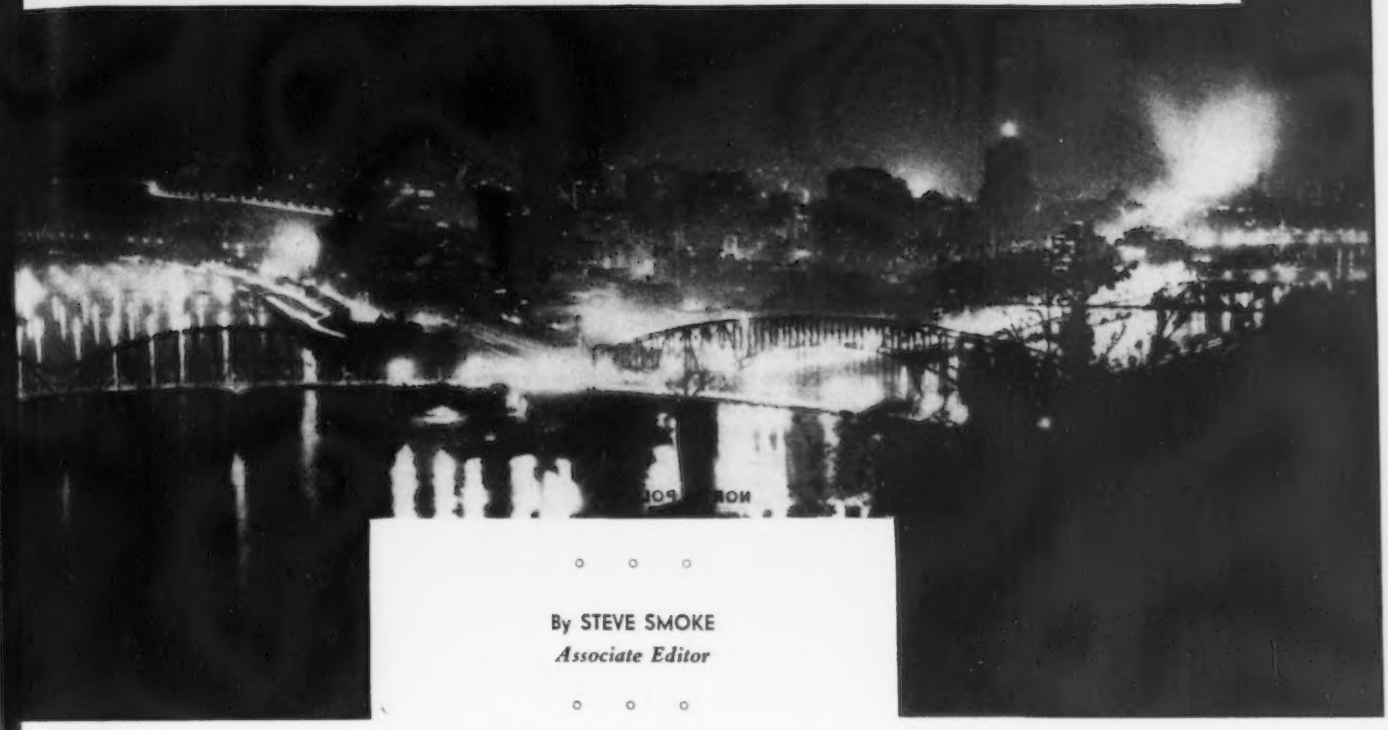
• • • **The Spang-Chalfant** Div. of the National Supply Co. has announced advanced prices on seamless and welded pipe and tubing.

The increases are as follows:

Seamless oil country goods—J-55 and H-40 casing, $10 per net ton; J-55 and H-40 oil well tubing, $11 per net ton; N-80 casing and oil well tubing, $15 per net ton; drill pipe all grades, $8 per net ton.

On all other seamless pipe the discount was reduced five points, which is equivalent to an increase of $10 per net ton. Continuous welded pipe, ½ in. and larger, both black and galvanized, was increased $10 per ton net.

# Metal Fabricators Hope Pittsburgh Answer To FOB Problem



By STEVE SMOKE
*Associate Editor*

*tsburgh*

• • **Three generations** ago Slavs od on the decks of ships enter- New York harbor and gazed in e at the Statue of Liberty. It s not uncommon for one of m to look apprehensively at the y next to him and say, "Piss- ork". The other Slav would throw arms around him and say, "Da Pissboork". Then and there a endship was born that continued ough the years as a dynasty of el was built in Pittsburgh, where Allegheny joins the Mononga- a to form the Ohio—and the lden Triangle.

In that day men from all over world flocked to the now Smoky y to bask in the fortunes that re to be made from iron making. Today men are again turning ir eyes toward Pittsburgh. This e the men are not laborers, but bricators. This is now the age steel. But fortunes again seem be centering around Pittsburgh nd other steel producing points. But the groundwork that these orers of three generations ago d is primarily the cause of the esent trend — precipitated of rse by the recent Supreme Court decision outlawing the multiple basing point system of selling steel.

This summer steel fabricators will give increased consideration to relocation of their shops. The new pricing system which puts into effect f.o.b. mill sales of steel will give fabricators who locate in steel centers such as Pittsburgh a decided advantage in being able to buy steel at lower costs than their competitors at points more removed from their source of supply. The most prominent savings would result in freight costs due to the pricing-at-the-mill method of selling steel products.

Some industrialists such as Theodore F. Smith, president of the Oliver Iron & Steel Corp., feel that under the present situation all fabricators who are unfavorably located with respect to steel supply face extinction at the hands of more favorably located competitors.

Several large industrial firms have already made serious investigations of plant sites in the Pittsburgh district, according to Alan M. Schaife, chairman of the Industrial Development Council of the Pittsburgh Chamber of Commerce. In addition an increasing number of inquiries are being made by fabricators from all sections of the country since the pricing change.

As long as fabricators are faced with the problem of buying steel from suppliers in several geographical locations to ensure adequate stockpiles, and as long as f.o.b. mill pricing remains in effect — fabricators will have their eyes turned toward the greener pastures of steel centers. Not only are they faced with freight costs but higher freight costs than steel producers paid for many years and also the hidden costs of maintaining clerical staffs sufficiently large to take care of freight routing and rates which few have had experience with.

It is little wonder that those shops who are at all able to, are seriously contemplating relocation.

For years the Greater Pittsburgh district including Johnstown, Pa., has accounted for 22 to 23 pct of total steel capacity in the United States. When the large area of Pittsburgh, Weirton, Wheeling, Youngstown and Cleveland are considered as a whole the combined capacity in that area is 43.5 pct of the total for the country.

(CONTINUED ON PAGE 128)

# Industrial Briefs . . .

• NEW TRADE NAME—The main product of the American Cladmetals Co., Carnegie, Pa., stainless clad copper, will be Rosslyn metal, it was announced recently. Previously stainless clad copper was known as Amclad.

• CHANGE OF ADDRESS—The Youngstown Sheet & Tube Co. has announced that their Columbus district office has been moved from 2600 to 2850 Le-Veque Lincoln Tower.

• LEASES PLANT—The Western Electric Co. has leased the plant facilities formerly occupied by Prest-O-Lite Battery Co. at Indianapolis. Western Electric will soon start operations at this plant.

• EXPANDS—McCook, Ill., has been chosen as the site of the new plant of Turco Products, Inc., manufacturers of specialized industrial cleaning compounds. The new plant is a necessary addition to Turco's present manufacturing facilities at Chicago, Los Angeles and Houston.

• BUILDING CRANES—Manzel, Inc., Buffalo, has started production of a portable, hydraulic crane for industrial use and for garages and service stations. Capacity is 1 to 3 tons, depending on design.

• NEW WAREHOUSE—The Belmont Steel Co. has opened a new sheet warehouse in Chicago and will handle slitting and shearing contracts for sheet users. The warehouse is capaple of processing about 15,000 tons a month with their present facilities.

• TO SELL EQUIPMENT—Announcement has been made of the reorganization of J. M. Barclay, Inc., Newark, N. J., as sales representative in New Jersey north of Trenton for the Automatic Transportation Co., Chicago materials handling equipment manufacturer.

• TOOL AGENT—The Hauser Machine Tool Corp., Manhassett, N. Y., has appointed Anderson & Clark, 607 Wysor Bldg., Muncie, Ind., as their representatives for the state of Indiana.

• TRANSFERS OFFICE—Baltimore Foundry & Machine Corp., manufacturer of miscellaneous steel castings, has announced that their sales headquarters have been transferred from Baltimore to the firm's parent organization, the McConway & Torley Corp. at Pittsburgh.

• DETROIT OUTLET—The Bound Brook Oil-Less Bearing Co., Bound Brook, N. J., has announced that Eynon-Eakin Co., of Detroit, will carry a complete stock of Compo oil retaining porous bronze bearings and other Bound Brook products.

• NAMES DIRECTOR—Dr. Haldon A. Leedy has been named director of Armour Research Foundation of Illinois Institute of Technology following the resignation of Dr. Jesse E. Hobson, who went to California as director of the Stanford Research Institute.

• PRODUCES CASTINGS—The Meehanite Metal Corp., New Rochelle, N. Y., has announced that through its London office, the International Meehanite Metal Co., Ltd., a contract has been negotiated with Goulds Mechanisation, Ltd., Newport, Monmouth Country, Wales, to produce Meehanite castings.

• ACQUISITION—The Tube Turns, Inc., Louisville, has acquired the Pennsylvania Forge Corp., Tacomy, Pa., manufacturers of flanges and custom forgings. The business of the new subsidiary will continue to be operated under the name of the Pennsylvania Forge Corp. and there will be no change in the personnel.

## Pittsburgh Hope

(CONTINUED FROM PAGE 127)

Since Pittsburgh produces mo steel than it consumes the future o mills there depends on new indus tries establishing there.

Pittsburgh's favorable locatio near major market areas, goo transportation, abundant raw ma terials needed for metal fabricatin and adequate labor supply shou provide the chamber of commer with plenty to say to metal fabr cating firms looking for new home

So today, it's not two Slavs o the deck of a ship pulling into Ne York harbor on their way to "Pis boork", but it's a couple of me who have been pretty successful i the fabricating business—so fa who look at Pittsburgh as a sol tion to their problems.

## Wisconsin Steel Prices

*Chicago*

• • • **Wisconsin Steel Co.** has ad vanced prices effective July 2 Below are old and new prices f.o.b mill.

(F.O.B. Mills—cents per lb)

| | Old | New | Increa per to |
|---|---|---|---|
| H-R bars | 2.85 | 3.35 | $10 |
| H-R strip | 2.75 | 3.25 | 10 |
| H-R sheets | 2.75 | 3.25 | 10 |
| H-R plates | 2.90 | 3.40 | 10 |
| Shapes | 2.75 | 3.25 | 10 |
| H-R alloy bars | 3.20 | 3.75 | 11 |
| C-R bars | 3.45 | 4.00 | 11 |

## Republic Steel Prices

*Cleveland*

• • • **Republic Steel Corp.** ha raised steel prices an average $9.00 a ton. The recent rise in ste prices substantiates the outspok views of Charles M. White, pres dent of the company. Mr. White ha repeatedly argued that the steel in dustry needed higher prices if were to remain in a safe positio

All of Republic Steel's price were not available at the time TH IRON AGE went to press. But fo lowing are the major items f.o.b mill with prices in effect before an after the raise:

F.O.B. MILLS—cents per lb

| | Old | New | Increa per to |
|---|---|---|---|
| H-R Bars[1 2 3] | 2.90 | 3.35 | $9 |
| H-R Sheets[2] | 2.80 | 3.25 | 9 |
| H-R Strip[4] | 2.80 | 3.25 | 9 |
| C-R Sheets[2] | 3.55 | 4.00 | 9 |
| C-R Strip[4] | 3.55 | 4.00 | 9 |
| Plates[2] | 2.95 | 3.40 | 9 |

(1) Buffalo, (2) Cleveland, (3) Canton, (4) Warren.

# Weekly Gallup Polls . . .

## Optimistic Voter Mood Dulls Edge of Slump Warning

*Princeton, N. J.*

• • • **When America's voters** go to the polls this fall, assuming they feel then the way they do now, the fear of another depression is going to assume less importance than at any time in recent years, according to George Gallup, director, American Institute of Public Opinion.

But to the extent that voters do worry about the possibility of a business slump, the Democratic party still has the advantage, and undoubtedly it will be a major part of Democratic strategy either to warn people of a forthcoming depression or point to their party's achievements in handling past depressions.

They will be on sound ground in following this line because over the last sixteen years they have convinced substantial numbers of voters that the Democratic party is best able to run the government during bad times. Irrespective of candidates, the weight of voter opinion agrees with this premise.

A representative cross-section of voters was asked:

**"If we should have another serious business depression in four years, which political party do you think could deal with it best?"**

The answers:

| | Pct |
|---|---|
| Democratic Party | 38 |
| Republican Party | 28 |
| Wallace Third Party | 2 |
| No difference | 19 |
| No opinion | 13 |

But during the 1948 campaign the depression argument, although it was used quite profusely at the Democratic convention, will not carry as much weight in the minds of the voting public.

This is the case because, with prosperity and employment at their peaks, a majority of voters with opinions believe that there will be no serious slump in business conditions during the next four years, when the party winning in November will be in power.

The same cross-section of voters was asked:

**"Do you think thre will be another serious businss deprssion in the United States during the next four years?"**

The answers:

| | Pct |
|---|---|
| No | 41 |
| Yes | 36 |
| Don't know | 23 |

In contrast to this mood of optimism about the nation's economic prospects, voters at the same period in 1944 were fearful of wide-scale unemployment and renewed breadlines following the end of World War II. Impressed by views of leading economists, the typical voter thought there would be millions of unemployed.

Although their fears proved to be unfounded, this state of pessimism undoubtedly entered the political thinking of many voters when they cast their ballots in November of that year. Unless signs of a slump appear this summer or early fall, the same considerations most likely will not affect a majority of voters at this time.

Analysis of the current survey reveals the voting groups most likely to pay attention to the usual depression argument put forth by Democratic strategists. Only in the case of professional and business people and white collar workers do a majority of voters in any group believe that the Republicans can handle a depression better. All other groups give the edge to the Democrats, manual workers voting that way better than two to one.

•

• • • **The Democratic Party** served adequate notice at its convention that the campaign issue to be debated most heatedly in the months ahead is the one that American voters cite as the nation's most pressing domestic problem — the high cost of living.

Reasons why high prices have assumed top importance in voters' minds are to be found in statements by representative voters on the minimum family income required to live decently in their own communities.

In 1937 the typical American told institute interviewers that a family with two children needed a minimum of $30 a week to maintain a decent home.

But when he answers that same question today, eleven years later, the average person says that it now takes a minimum of $50 a week for a family of four to make ends meet.

While family incomes have also increased substantially in this period, still at least approximately a third of the people say that their family incomes are below the minimum standards which they set.

After representative voters in the current survey had named the sum of money needed by a family of four, they were asked:

**"Is your total weekly family income larger or smaller than this?"**

Here are the answers:

| | Pct |
|---|---|
| Larger | 44 |
| Same | 15 |
| Smaller | 32 |
| Don't know | 9 |

Politically, the important fact is that, regardless of how they fare today compared with ten years ago, the 32 pct who said their incomes were below standard feel that today they are having a hard time making ends meet.

Because of their numerical strength, the present party leanings of these voters carry important implications for this presidential campaign. And as of today they favor the Democratic party, as their answers to the following questions show:

**"Leaving aside the question of candidates which party would you like to see win the next Presidential election, the Republican, the Democratic, or Wallace's Third Party?"**

They voted:

| | Pct |
|---|---|
| Democratic Party | 41 |
| Republican Party | 37 |
| Wallace's Third Party | 4 |
| No Opinion | 18 |

### Poll Shows Family of Four Needs $50 Minimum Against $30 Weekly Ten Years Ago

o o o

# Predict Expenditures of About $4.6 Billion For New Equipment

• • • **Something looking** very much like the second era of wonderful nonsense, an illogical sequel to the premiere of modern economic aberration which took place following World War I, got under way last week, much to the consternation of some segments of the machine tool industry.

In one fell swoop, the price of steel was increased $9.34 per ton (by one of the major producers), a move most experts agreed would inspire everything but confidence on the part of machine tool buyers.

Practically simultaneously, the Securities and Exchange Commission and the Dept. of Commerce predicted jointly, on the basis of a survey, that American business, exclusive of agriculture, expects to spend about $4.6 billion during the third quarter of 1948 for the construction of new plants and the purchase of new equipment.

Last and certainly least, War Assets Administrator Jesse Larson told regional directors of WAA to put their houses in order to go out of business by Feb. 28, 1949, thus removing the last nubbin of a nettle, which WAA has been, from the industry's side. Part of Mr. Larson's objective is the completion of the reconciliation of records by Jan. 31, 1949.

Apart from the economic pyrotechnics which the steel price increase will probably set off, the SEC-Dept. of Commerce survey is probably of more immediate interest to machine tool builders than the rest of the week's developments.

A further breakdown of the survey shows that manufacturers will spend an estimated $1850 million in the third quarter, the mining industry $180 million, the railroads $380 million and other forms of transportation $170 million. In theory at least, this should mean some good orders for the machine tool industry, which at the moment is waiting for the orders from the defense program and ECA to come through.

In addition to the $4.6 billion on new plant and equipment, it is estimated that American business will spend another $100 billion on old or used plants and equipment.

According to the SEC-Dept. of Commerce survey, these expenditures are about on a level with the outlays which business now anticipates for the second quarter and are above the actual first quarter outlays largely as a result of seasonal factors.

The rates of aggregate business expenditures for the new plants and equipment anticipated in the second and third quarters of 1948 are considerably above those in the corresponding period of 1947, though most of the anticipated increases from last year reflect the upward movement in prices, the survey pointed out.

According to reports submitted earlier this year, the total of expenditures for new plant and equipment in 1948 was expected to reach $18.6 billion, of which about one half was planned for the first 6 months. Partly because of severe weather conditions, actual outlays of $4.2 billion during the first quarter were $300 million below the figure anticipated for that quarter. However, expenditures now planned by business for the second and third quarters of 1948 do not appear to differ greatly from those originally anticipated for this period in the opening months of the year, the report stated.

Expansion of the jet program is providing some segments of the machine tool industry with a fertile source of orders. Additional companies are getting into the turbine blade field every month and makers of equipment particularly adapted to blade production are reaping the benefits.

In this connection, present security regulations appear to be somewhat flexible. A sales representative of a major machine tool builder was admitted to a blade shop recently, but only after signing the proper secrecy pledges. There was, it seemed, a classified (or semi-secret) method of inspecting the radial alignment and spacing of a turbine assembly. The sales representative was duly impressed and went home that night vowing that no word pertinent to the setup should cross his lips. Two days later, turning the pages of an aircraft corporation's magazine, he found as a fillip to his secrecy pledges, a photograph of the inspection setup with all pertinent details.

## WAA Regional Directors Told To Clean House and Close By Feb. 28, 1949

o o o

In Detroit so far there has been little or no active inquiry for machine tools in connection with the defense program. Authorities here expect that the Air Corps tooling program will hit first, but nobody knows when. Some of the machine tool builders are not too hapy about the new methods of procurement which have been decided upon jointly by all armed services. Their chief complaint is that there are too many needless clauses affecting contracts which could clutter up some phases of the purchasing procedure.

Generally the machine tool industry in Detroit is dead. The tool and die workers strike is a factor, but active programs elsewhere are hard to find. Machine tool makers not able to keep their workers busy on regular business are continuing to take in contract work. It is not only true of the Detroit area, but holds true in Milwaukee, Cincinnati, Rockford, Chicago and all over the general midwest area.

One Detroit maker of specialized tooling who has concentrated on export orders mostly to France, Britain and the Scandinavian countries, is enjoying particularly good business. It is reported that this company has a backlog on order good to spring of next year. Observers here generally believe that the machine tool industry will remain relatively inactive until about September.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# Steelmaking Grades Advance $2.50 A Ton

*New York*

• • The upshot of the mills' failure to make their inflation-combating prices stick has been to boost all steelmaking grades $2.50 a ton. Higher scrap prices are designed to serve two purposes. The mills hope more material will move for the extra $2.50 and the action is a concession to fabricators who will get a better kickback on returned scrap as partial compensation for the higher prices they'll be paying. Few observers, however, expect that the boost—except for scrap that has been withheld for the past few weeks—will bring out more material. Many dealers think that in view of the steel price increase, $2.50 isn't enough. Whether or not they're right, and whether or not the new formula—for that is what it amounts to—will stick may well be decided within 6 weeks, as mill inventories are at low tide. Estimates put inventories 10 pct higher than the average than at this time last year. But that doesn't mean they're good, as last August was a very low point.

Cast grades have not yet reflected the boost. But in most markets foundries are through with vacations and back in business. As a result prices are generally very firm, and especially in New England, brokers are scurrying to cover orders.

Deals involving the return of unprepared scrap, not a listed commodity, are apparently on the upswing. In most instances, dealers are completely bypassed with the mills doing their own sorting and preparing.

Orders on which tonnages have not yet been shipped are expected to be cancelled and revised except in some cases of negotiated set prices at over-formula levels.

•

PITTSBURGH—Brokers were scrambling to cover as steelmaking scrap grades advanced $2.50 a ton here. Initial dealer reaction—after considering the steel price boosts—was that $2.50 wasn't enough. In some circles it was said that the increase in scrap prices was made to offset steel price advances to fabricators. Since a large percentage of scrap moves from steel users to mills on directives it was apparently felt that consumers were entitled to a higher return on their scrap. Few believed the increase would bring out much more scrap, except that which had been held back for the past few weeks. Cast iron grades are as yet unaffected by the advance.

•

CHICAGO—The word formula as well as the price is now taboo. Scrap was purchased last week by at least two local mills, in substantial tonnages at $42 gross ton delivered. For the most part other items showed the usual differential. Opinions vary widely on present market conditions. Some claim the market is now stabilized, a few believe it to be poised for runaway prices. Some sellers are assuming that a formula system still exists which is merely $2.50 over the old price. The more realistic thinkers are assuming nothing.

•

PHILADELPHIA—The long expected break through of the scrap market in this district developed last week when at least one mill here and others in the west advanced prices for heavy melting grades by $2.50 a ton. For the past few weeks dealers had been holding back on sales in anticipation of the higher prices. In addition, scrap intake into yards continues to decrease, according to dealers' reports. Foundry grades are unchanged. There is inactivity in the chemical borings market because principal factors are not buying. However, they are being sold to some foundries at delivered prices above the quoted market.

•

CLEVELAND—Major consumers moved into the market here and in the Valley this week with a flat $2.50 a gross ton increase on steel mill grades effective on shipment July 23 and thereafter. If some observers are correct in their contention that there is no shortage of scrap at the right price, shipments should show an immediate improvement. Apart from producing more shipments for the time being at least, the move will also serve to compensate some steel consumers to some extent on the steel price increase.

•

DETROIT—New mill prices have caused all brokers to revert to a straight $38 FOB car offer to dealers. Other items show the usual spread from the new No. 1 heavy melting price. Unprepared scrap, not being a listed commodity, permits any kind of a price. Some interesting deals are already underway on scrap of this type. It was too early to tell last week if the new prices would stop the Valley mills from raiding the Detroit area with premium priced orders.

•

BUFFALO—Steelmaking grades are up $2.50 across the board. But buyers indicate that no old orders are to be cancelled and that they will expect previous commitments to be upheld. Pittsburgh area consumers continue to take No. 2 steel from eastern N. Y. and are paying prices over Buffalo equivalents. Leading buyers in low phos have so far refused to follow the full advance in that grade.

•

BIRMINGHAM—The formula price line finally cracked and yielded to the pressure generated by pig iron steel price increases. Apparently expecting a price increase, the Louisville & Nashville Railroad and the Southern did not sell heavy melting steel when their lists were offered last week.

•

NEW YORK—The upshot of the steel price increases has been a $2.50 hike across the board on steelmaking scrap. Those who withheld material last week in anticipation of the boost are now shipping and movement is good, at least in comparison with the past couple months. Foundries with vacations over have come back into the market and have strengthened the cast grade demand somewhat, but no price changes have been indicated.

•

CINCINNATI—Reflecting the activity in other districts, scrap prices here advanced $2.50 per gross ton on steel mill grades and were followed by increases in foundry material.

•

BOSTON — Speculative buying has broken out here in a strong market and there is now no longer any question about brokers paying more than formula prices. The long-time price of $31.65 to $31.90 for Nos. 1 and 2 heavy melting, Nos. 1 and 2 bundles and shoveling turnings has given way to a $34 to $35 figure. Chemical borings appear to be a drug on the market and are down from a $36 to $37 range to $33 to $33.50. No. 1 machinery cast is hard to get and heavy breakable and stove plate are quoted hard to sell.

•

ST. LOUIS—Steel mills, who have been holding the line despite speculative buying at higher prices, increased buying prices $2.50 a ton on steelmaking material for the first change in those grades in approximately six months. Slowing up of shipments and competition from other markets are said to have promoted the advance. The mills are said to be comfortably fixed with inventories, but are looking to the future. It is expected that the advance will cause tonnages which have been held up for higher prices to move to the market. Foundry grades are strong.

•

TORONTO—With the holiday season in full swing scrap receipts by dealers have shown a further decline and only small tonnages are available to meet the expanding demand. Supplies are being received from western Canada and occasional cars from northern Ontario and the rural districts. Dealers are depending chiefly on industrial scrap, but even in this quarter offerings have fallen off recently. Big consumers are looking to foreign sources of supply to provide scrap for winter requirements and some big tonnages have already been contracted for. Ceiling prices on steel grades remain unchanged.

Going prices as obtained in the trade by THE IRON AGE, based on representative tonnages.

## PITTSBURGH

**Per gross ton delivered to consumer:**

| | | |
|---|---|---|
| No. 1 hvy. melting | $42.50 to | $43.00 |
| RR. hvy. melting | 43.50 to | 44.00 |
| No. 2 hvy. melting | 42.50 to | 43.00 |
| RR. scrap rails | 56.00 to | 57.00 |
| Rails 2 ft and under | 62.50 to | 63.50 |
| No. 1 comp'd bundles | 42.50 to | 43.00 |
| Hand bdld. new shts | 42.50 to | 43.00 |
| Hvy. axle turn. | 42.00 to | 42.50 |
| Hvy. steel forge turn | 42.00 to | 42.50 |
| Mach. shop turn | 37.50 to | 38.00 |
| Shoveling turn. | 39.50 to | 40.00 |
| Mixed bor. and turn | 37.50 to | 38.00 |
| Cast iron boring | 38.50 to | 39.00 |
| **No. 1 cupola cast** | **63.00 to** | **64.50** |
| **Hvy. breakable cast** | **52.00 to** | **53.00** |
| **Malleable** | **76.00 to** | **77.00** |
| **RR. knuck. and cup** | **56.00 to** | **57.00** |
| **RR. coil springs** | **56.00 to** | **57.00** |
| R.R. leaf springs | 56.00 to | 57.00 |
| Rolled steel wheels | 56.00 to | 57.00 |
| Low phos. | 48.50 to | 49.00 |

## CHICAGO

**Per gross ton delivered to consumer:**

| | | |
|---|---|---|
| No. 1 hvy, melting | $41.50 to | $42.00 |
| No. 2 hvy. melting | 41.50 to | 42.00 |
| No. 1 bundles | 41.50 to | 42.00 |
| No. 2 dealers' bundles | 41.50 to | 42.00 |
| Bundled mach. shop turn. | 39.50 to | 40.00 |
| Galv. bundles | 38.00 to | 38.50 |
| Mach. shop turn. | 36.50 to | 37.00 |
| Short shov. turn. | 38.50 to | 39.00 |
| Cast iron borings | 38.00 to | 39.00 |
| Mix. borings & turn | 36.50 to | 37.00 |
| Low phos. hvy, forge | 49.00 to | 51.00 |
| Low phos. plates | 47.00 to | 48.00 |
| No. 1 RR. hvy. melt | 47.00 to | 48.00 |
| Rerolling rails | 60.00 to | 61.00 |
| **Miscellaneous rails** | **56.00 to** | **57.00** |
| Angles & splice bars | 58.00 to | 59.00 |
| Locomotive tires, cut | 56.00 to | 57.00 |
| Cut bolster & side frames | 51.00 to | 52.00 |
| Standard stl. car axles | 63.00 to | 64.00 |
| No. 3 steel wheels | 55.00 to | 56.00 |
| Couplers & knuckles | 55.00 to | 56.00 |
| **Rails, 2 ft and under** | **59.50 to** | **60.00** |
| Malleable | 79.00 to | 81.00 |
| No. 1 mach. cast | 71.00 to | 75.00 |
| No. 1 agricul. cast | 66.00 to | 68.00 |
| Heavy breakable cast | 60.00 to | 64.00 |
| RR. grate bars | 66.00 to | 68.00 |
| Cast iron brake shoes | 59.00 to | 61.00 |
| Cast iron carwheels | 62.00 to | 63.00 |

## CINCINNATI

**Per gross ton delivered to consumer:**

| | | |
|---|---|---|
| No. 1 hvy. melting | $41.00 to | $42.00 |
| No. 2 hvy. melting | 41.00 to | 42.00 |
| No. 1 bundles | 41.00 to | 42.00 |
| No. 2 bundles | 41.00 to | 42.00 |
| Mach. shop turn | 35.50 to | 36.00 |
| Shoveling turn. | 37.50 to | 38.00 |
| Cast iron borings | 35.00 to | 35.50 |
| Mixed bor. & turn | 35.00 to | 35.50 |
| Low phos., plate | 48.50 to | 50.50 |
| No. 1 cupola cast | 66.00 to | 68.00 |
| Hvy. breakable cast | 58.00 to | 59.00 |
| Rails 18 in. & under | 61.50 to | 62.50 |
| Rails random length | 55.00 to | 56.00 |
| Drop broken | 70.00 to | 71.00 |

## BOSTON

**Dealers' buying prices, per gross ton, f.o.b. Boston**

| | | |
|---|---|---|
| No. 1 heavy, melting | $34.00 to | $35.00 |
| No. 2 hvy. melting | 34.00 to | 35.00 |
| Nos. 1 and 2 bundles | 34.00 to | 35.00 |
| Busheling | 34.00 to | 35.00 |
| Shoveling turn. | 30.00 to | 31.00 |
| Machine shop turn. | 28.00 to | 29.00 |
| Mixed bor. & turn | 28.00 to | 29.00 |
| Cl'n cast chem. bor. | 33.00 to | 33.50 |
| No. 1 machinery cast | 59.00 to | 60.00 |
| No. 2 machinery cast | 56.00 to | 57.00 |
| Heavy breakable cast | 54.00 to | 54.50 |
| Stove plate | 51.00 to | 51.50 |

## DETROIT

**Per gross ton, brokers' buying prices f.o.b. cars:**

| | | |
|---|---|---|
| No. 1 hvy. melting | .... | $38.00 |
| No. 2 hvy. melting | .... | 38.00 |
| No. 1 bundles | .... | 38.00 |
| New busheling | .... | 38.00 |
| Flashings | .... | 38.00 |
| Mach. shop turn. | $32.50 to | 33.00 |
| Shoveling turn. | 34.50 to | 35.00 |
| Cast iron borings | 33.50 to | 34.00 |
| Mixed bor. & turn | 34.50 to | 35.00 |
| Low phos. plate | 42.50 to | 43.00 |
| No. 1 cupola cast | 52.00 to | 55.00 |
| Heavy breakable cast | 45.00 to | 50.00 |
| Stove plate | 48.00 to | 50.00 |
| Automotive cast | 52.00 to | 55.00 |

## PHILADELPHIA

**Per gross ton delivered to consumer:**

| | | |
|---|---|---|
| **No. 1 hvy. melting** | **$44.50 to** | **$45.50** |
| No. 2 hvy. melting | 41.00 to | 41.50 |
| No. 1 bundles | 44.50 to | 45.50 |
| No. 2 bundles | 41.00 to | 41.50 |
| Mach. shop turn. | 36.50 to | 37.00 |
| Shoveling turn. | 36.50 to | 37.00 |
| Mixed bor. & turn | 36.50 to | 37.00 |
| Clean cast chemical bor. | 42.00 to | 44.00 |
| No. 1 machinery cast | 65.00 to | 66.00 |
| No. 1 mixed yard cast | 60.00 to | 62.00 |
| **Hvy. breakable cast** | **62.00 to** | **64.00** |
| **Clean auto cast** | **65.00 to** | **66.00** |
| Hvy. axle forge turn. | 46.50 to | 47.50 |
| Low phos. plate | 50.50 to | 51.50 |
| Low phos. punchings | 50.50 to | 51.50 |
| Low phos. bundles | 48.50 to | 49.50 |
| RR. steel wheels | 52.00 to | 53.00 |
| RR. coil springs | 52.00 to | 53.00 |
| RR. malleable | 75.00 to | 78.00 |
| Cast iron carwheels | 68.00 to | 70.00 |

## ST. LOUIS

**Per gross ton delivered to consumer:**

| | | |
|---|---|---|
| No. 1 hvy. melting | $42.00 to | $43.00 |
| No. 2 hvy. melting | 40.00 to | 41.00 |
| Bundled sheets | 40.00 to | 41.00 |
| Mach. shop turn. | 35.50 to | 36.00 |
| Locomotive tires, uncut | 48.00 to | 49.00 |
| Mis. std. sec. rails | 50.00 to | 51.00 |
| Steel angle bars | 54.00 to | 55.00 |
| **Rails 3 ft and under** | **53.00 to** | **55.00** |
| RR. steel springs | 51.00 to | 52.00 |
| Steel car axles | 56.00 to | 57.00 |
| **Grate bars** | **59.00 to** | **60.00** |
| **Brake shoes** | **57.00 to** | **58.00** |
| **Malleable** | **72.00 to** | **73.00** |
| Cast iron car wheels | 61.00 to | 62.00 |
| No. 1 machinery cast | 65.00 to | 67.00 |
| Hvy. breakable cast | 59.00 to | 60.00 |

## BIRMINGHAM

**Per gross ton delivered to consumer:**

| | | |
|---|---|---|
| No. 1 hvy. melting | .... | $40.00 |
| No. 2 hvy. melting | .... | 40.00 |
| No. 2 bundles | .... | 40.00 |
| No. 1 busheling | .... | 40.00 |
| Long turnings | 27.50 to | 28.50 |
| Shoveling turnings | 29.50 to | 30.50 |
| Cast iron borings | .... | .... |
| Bar crops and plate | 44.00 to | 45.00 |
| Structural and plate | 44.00 to | 45.00 |
| **No. 1 cupola cast** | **64.00 to** | **67.00** |
| **Stove plate** | **63.00 to** | **64.00** |
| No. 1 RR. hvy. melt | .... | 41.00 |
| Steel axles | 51.00 to | 52.00 |
| Scrap rails | 44.00 to | 45.00 |
| **Rerolling rails** | **51.00 to** | **53.00** |
| **Angles & splice bars** | **51.00 to** | **53.00** |
| **Rails 3 ft & under** | **52.00 to** | **55.00** |
| **Cast iron carwheels** | **50.00 to** | **55.00** |

## YOUNGSTOWN

**Per gross ton delivered to consumer:**

| | | |
|---|---|---|
| No. 1 hvy. melting | $42.50 to | $43.00 |
| No. 2 hvy. melting | 42.50 to | 43.00 |
| Mach. shop turn. | 37.50 to | 38.00 |
| Short shov. turn. | 39.50 to | 40.00 |
| Cast iron borings | 38.50 to | 39.00 |
| Low phos. | 47.50 to | 48.00 |

## NEW YORK

**Brokers' buying prices per gross ton, on cars:**

| | | |
|---|---|---|
| No. 1 hvy. melting | $37.00 to | $38.50 |
| No. 2 hvy. melting | .... | 37.00 |
| No. 2 bundles | .... | 37.00 |
| Mach. shop turn. | 31.50 to | 32.00 |
| Mixed bor .& turn. | 31.50 to | 32.00 |
| Shoveling turn. | 33.50 to | 34.50 |
| **No. 1 cupola cast** | **55.50 to** | **56.50** |
| **Clean auto cast** | **55.50 to** | **56.50** |
| **Hvy. breakable cast** | **56.00 to** | **57.50** |
| **Charging box cast** | **56.00 to** | **57.50** |
| **Unstrp. motor blks** | **52.00 to** | **53.00** |
| **Cl'n cast chem. bor** | **34.50 to** | **35.50** |

## BUFFALO

**Per gross ton delivered to consumer:**

| | | |
|---|---|---|
| No. 1 hvy. melting | $42.25 to | $46.00 |
| No. 2 hvy. melting | .... | 42.00 |
| No. 1 bundles | .... | 42.00 |
| No. 2 bundles | .... | 42.00 |
| No. 1 busheling | .... | 42.00 |
| Mach. shop turn. | 37.25 to | 38.00 |
| Shoveling turn. | 37.50 to | 39.00 |
| Cast iron borings | .... | 38.00 |
| Mixed bor. & turn | .... | 37.50 |
| No. 1 cupola cast | 64.00 to | 65.00 |
| **Mixed cupola cast** | 60.00 to | 61.00 |
| **Charging box cast** | 56.00 to | 57.00 |
| **Stove plate** | 60.00 to | 61.00 |
| **Stove auto cast** | 60.00 to | 61.00 |
| RR. malleable | 70.00 to | 75.00 |
| Small indi. malleable | 47.00 to | 49.00 |
| Low phos. plate | 47.00 to | 47.50 |
| Scrap rails | 50.00 to | 52.00 |
| Rails 3 ft & under | 57.00 to | 58.00 |
| RR steel wheels | 51.00 to | 52.00 |
| Cast iron carwheels | 51.00 to | 52.00 |
| RR. coil & leaf spgs | 51.00 to | 52.00 |
| RR. knuckles & coup | 51.00 to | 52.00 |

## CLEVELAND

**Per gross ton delivered to consumer:**

| | | |
|---|---|---|
| No. 1 hvy. melting | $42.00 to | $42.50 |
| No. 2 hvy. melting | 42.00 to | 42.50 |
| No. 1 bundles | 42.00 to | 42.50 |
| No. 1 busheling | 42.00 to | 42.50 |
| Drop forge flashings | 42.00 to | 42.50 |
| Mach. shop turn. | 37.00 to | 37.50 |
| Shoveling turn. | 39.00 to | 39.50 |
| Steel axle turn. | 42.00 to | 42.50 |
| Cast iron borings | 38.00 to | 38.50 |
| Mixed bor. & turn | 38.00 to | 38.50 |
| Low phos. | 47.00 to | 47.50 |
| No. 1 machinery cast | 72.00 to | 76.00 |
| Malleable | 74.00 to | 76.00 |
| RR. cast. | 73.00 to | 74.00 |
| Railroad grate bars | 60.00 to | 62.00 |
| Stove plate | 61.00 to | 63.00 |
| RR. hvy. melting | 42.50 to | 43.00 |
| Rails 3 ft & under | 60.00 to | 61.00 |
| Rails 18 in. & under | 62.00 to | 63.00 |

## SAN FRANCISCO

**Per gross ton f.o.b. shipping point:**

| | | |
|---|---|---|
| No. 1 hvy, melting | .... | $25.00 |
| No. 2 hvy, melting | .... | 25.00 |
| No. 2 bales | .... | 25.00 |

**Per gross ton delivered to consumer:**

| | | |
|---|---|---|
| No. 3 bales | .... | $19.50 |
| Mach. shop turn. | .... | 16.00 |
| Elec. fur. 1 ft under | $32.00 to | 34.00 |
| No. 1 cupola cast | 50.00 to | 51.00 |
| RR. hvy, melting | .... | 26.00 |

## LOS ANGELES

**Per gross ton f.o.b. shipping point:**

| | | |
|---|---|---|
| No. 1 hvy, melting | .... | $25.00 |
| No. 2 hvy, melting | .... | 25.00 |
| No. 2 bales | .... | 25.00 |
| No. 3 bales | ..... | 19.00 |
| Mach. shop turn. | .... | 17.50 |
| No. 1 cupola cast. | $45.00 to | 50.00 |
| RR. hvy. melting | .... | 26.00 |

## SEATTLE

**Per gross ton delivered to consumer:**

| | | |
|---|---|---|
| No. 1 & No. 2 hvy. melt | .... | $26.00 |
| Elec. furn. 1 ft and under. | .... | 40.00 |
| No. 1 cupola cast | 40.00 to | 43.50 |
| RR. hvy, melting | .... | 26.00 |

## HAMILTON, ONT.

**Per gross ton delivered to consumer: Cast grades f.o.b. shipping point.**

| | |
|---|---|
| Heavy melting | $22.00* |
| No. 1 bundles | 22.00* |
| No. 2 bundles | 21.50* |
| Mechanical bundles | 20.00* |
| Mixed steel scrap | 19.00* |
| Mixed borings and turnings | 17.00* |
| Rails, remelting | 23.00* |
| Rails, rerolling | 26.00* |
| Bushelings | 17.00* |
| Bushelings, new fact, prop'd | 21.00* |
| Bushelings, new fact, unprep'd | 16.00* |
| Short steel turnings | 17.00* |
| No. 1 cast | $42.00 to 46.00* |
| No. 2 cast | 35.00 to 37.00* |

*Ceiling Price.

# NONFERROUS METALS

. . . News and Market Activities

## Metals Producers Study Present Price Increases

*New York*

• • • **Metals producers** are avidly studying the effects of the price increases announced last week in steel products and nickel. Shortages to meet domestic demand are present in lead, zinc and copper, which have encouraged the willingness of consumers to pay premiums. So far there is no definite information on the payment of premium prices for copper, but the payment of premiums for secondary lead and zinc that began before the strikes at Herculaneum and Joplin are continuing. The stockpiling of all three metals is aggravating the already tight positions.

Sale of both lead and zinc at well above the domestic markets is an indication that the world price of both metals is above them. Sales of foreign lead have been reported as high as 18½¢ and 19¢ f.a.s. Gulf Ports. Sellers of zinc are reported to be unwilling to make sales at the 12¢ level, in view of the knowledge that at the end of the Eagle-Picher strike there will be an immediate increase in domestic prices.

There is as yet no change in the price of Joplin concentrates, still nominally $78 a ton. But producers are not selling any concentrates. So far there has been no strike at any of the American Smelting & Refining Co.'s plants or at the Kennecott Copper Co. operations and observers believe that there is not likely to be any shutdown at this time. It is certain, however, that there must be price readjustments in some of these metals, perhaps all, when the new wage agreements of all producers go into effect. Higher labor and freight costs put a squeeze on high cost producers of these metals.

•

## Raise Condenser Tubing

*New York*

• • • **The increase in** the price of nickel came as a surprise to brass mills producing nickel silver and cupro nickel condenser tubing. However Phelps Dodge Copper Products Corp. announced increases in its condenser tubing effective July 23. These increases were 1⅞¢ per lb on 30 pct nickel tubing and 1¼¢ on 20 pct tubing. At press time no producer of nickel silver had announced increases in its prices but it is expected that such increases will be made this week. Other mills producing these products are expected to raise their products to meet the competition sometime during the week.

•

## Withdraw Anode Prices

*New York*

• • • **Plating anode** and salts manufacturers have withdrawn nickel anodes and salts from the market pending a study of their costs as affected by the sharp increase in nickel prices. It was reported that when the price of nickel was advanced to 35¢ a pound last year, only that increase was passed on to plating customers. However, advances in the cost of operations makes it necessary to charge a price higher than necessitated by the increase in nickel.

•

## Raise Nickel Price 6¼¢

*New York*

• • • **A price increase** of 6¼¢ per lb for nickel has been announced by the International Nickel Co., Inc. effective July 22. This action brings the contract price f.o.b. Port Colborne, Ont. up from 33¾¢ to 40¢ per lb, an increase of 18½ pct. Nickel oxide sinter from the new plant now in partial operation is offered at 36¼¢ per lb of nickel content, f.o.b. Copper Cliff, Ont. Corresponding increases were made in nickel and Monel mill products. Spot nickel prices, f.o.b. important consuming points have not yet been calculated. The International Nickel Co. of Canada, Ltd. simultaneously announced identical prices for refined nickel to Canadian and United Kingdom consumers.

In commenting on the price increases, Robert C. Stanley, chairman and president said that the company had been required to mine ores of considerably lower grade than prewar due to the heavy demand for nickel during and after the war. The company is about to start a long range mining program to open up a large underground ore body at Sudbury, Ont. of a grade much below the average. Wage increases granted in Canada in June, when added to previous 1948 and 1947 increases are reported to have added $10 million per year to plant costs. Stanley also said that the increase in the price of nickel would be helpful in providing Canada with additional foreign exchange necessary to sustain imports.

•

## Scrap and Ingots Steady

*New York*

• • • **For the first** time in a great many weeks the copper, brass and aluminum scrap markets and corresponding ingot markets have remained unchanged.

Ingot producers feel that their present high levels consuming demand could only be expected to fall off. In addition the summer decline in foundry activity is exerting its effect on order volume. However, in view of the continuing shortage of aluminum, copper and brass scrap, ingot producers expect the rise in ingot prices to resume soon.

•

## Dow Prices Alloy Ingot

• • • **The Dow Chemical** Co. has established a base price of 23¢ per lb for magnesium alloy ingot AS, effective July 13.

### Nonferrous Metals Prices

| | July 21 | July 22 | July 23 | July 24 | July 26 | July 27 |
|---|---|---|---|---|---|---|
| Copper, electro, Conn. | 21.50 | 21.50 | 21.50 | 21.50 | 21.50 | 21.50 |
| Copper, Lake, Conn. | 21.625 | 21.625 | 21.625 | 21.625 | 21.625 | 21.625 |
| Tin, Straits, New York | $1.03 | $1.03 | $1.03 | $1.03 | $1.03 | $1.03 |
| Zinc, East St. Louis | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| Lead, St. Louis | 17.30 | 17.30 | 17.30 | 17.30 | 17.30 | 17.30 |

## Primary Metals

*(Cents per lb. unless otherwise noted)*

| | |
|---|---|
| Aluminum, 99+%, 10,000 lb, f.o.b. shipping point, freight allowed | 16.00 |
| Aluminum pig, f.o.b. shipping point | 15.00 |
| Antimony, American, Laredo, Tex. | 35.00 |
| Beryllium copper, 3.75-4.25% Be dollars per lb contained Be | $20.50 |
| Beryllium aluminum 5% Be, dollars per lb contained Be | $40.00 |
| Cadmium, del'd | $1.75 |
| Cobalt, 97-99% (per lb) | $1.65 to $1.72 |
| Copper electro, Conn. Valley | 21.50 |
| Copper, lake, Conn. Valley | 21.625 |
| Gold, U. S. Treas., dollars per oz. | $35.00 |
| Indium, 99.8%, dollars per troy oz. | $2.25 |
| Iridium, dollars per try oz. | $100 to $110 |
| Lead, St. Louis | 17.30 |
| Lead, New York | 17.50 |
| Magnesium, 99.8+%, f.o.b. Freeport, Tex. | 20.50 |
| Magnesium, sticks, cariots | 34.50 |
| Mercury, dollars per 76-lb flask, f.o.b. New York | $76 to $78 |
| Nickel, electro, f.o.b. New York | 42.81 |
| Palladium, dollars per troy oz. | $24.00 |
| Platinum, dollars per troy oz. | $88 to $91 |
| Silver, New York, cents per oz. | 74.625 |
| Tin, Grade A, New York | $1.03 |
| Zinc, East St. Louis | 12.00 |
| Zinc, New York | 12.65 |
| Zirconium copper, 20 pct Zr, per lb contained Zr | $8.75 |

## Remelted Metals

### Brass Ingot

*(Cents per lb, in carloads)*

| | |
|---|---|
| 85-5-5-5 Ingot | |
| No. 115 | 19.50–20.00 |
| No. 120 | 19.00–19.50 |
| No. 123 | 18.50–19.00 |
| 80-10-10 Ingot | |
| No. 305 | 25.25 |
| No. 315 | 22.25 |
| 88-10-2 Ingot | |
| No. 210 | 31.00 |
| No. 215 | 29.00 |
| No. 245 | 23.25–23.75 |
| Yellow Ingot | |
| No. 405 | 15.25–16.00 |
| Manganese bronze | |
| No. 421 | 19.00 |

### Aluminum Ingot

*(Cents per lb, lots of 30,000 lb)*

| | |
|---|---|
| 95-5 aluminum-silicon alloys | |
| 0.30 copper, max. | 26.50–27.50 |
| 0.60 copper, max. | 26.50–27.00 |
| Piston alloys (No. 122 type) | 24.25–24.75 |
| No. 12 alum. (No. 2 grade) | 23.50–24.00 |
| 108 alloy | 23.50–24.25 |
| 195 alloy | 23.50–24.50 |
| 13 alloy | 26.00–27.00 |
| AXS-679 | 24.00–24.50 |

**Steel deoxidizing aluminum, notch-bar granulated or shot**

| | |
|---|---|
| Grade 1—95 pct.-95½ pct. | 24.50–25.50 |
| Grade 2—92 pct–95 pct. | 24.00–25.00 |
| Grade 3—90 pct–92 pct. | 23.00–24.00 |
| Grade 4—85 pct–90 pct. | 23.50–24.00 |

## Electroplating Supplies

### *Anodes*

*(Cents per lb, f.o.b. shipping point in 500 lb lots)*

| | |
|---|---|
| Copper, frt. allowed | |
| Cast, oval, 15 in. or longer | 37⅝ |
| Electrodeposited | 32⅜ |
| Rolled, oval, straight, delivered | 34.34 |
| Brass, 80-20, frt. allowed | |
| Cast, oval, 15 in. or longer | 33⅜ |
| Zinc, cast, 99.99 | 20.50 |
| Nickel 99 pct plus, frt. allowed | |
| Cast | — |
| Rolled, depolarized | — |
| Silver 999 fine | |
| Rolled, 100 oz lots per troy oz. | 67¼ |

### *Chemicals*

*(Cents per lb, f.o.b. shipping point)*

| | |
|---|---|
| Copper cyanide, 100 lb drum | 44.00 |
| Copper sulfate, 99.5, crystals, bbls. | 12.50 |
| Nickel salts, single or double, 425 lb bbls. frt. allowed | —— |
| Nickel chloride, 300 lb bbl. | —— |
| Silver cyanide, 100 oz. lots, per oz. | 54.00 |
| Sodium cyanide, 96 pct domestic, 100 lb drums | 15.00 |
| Zinc cyanide, 100 lb drums | 35.00 |
| Zinc sulfate, 89 pct, granules, bbls, frt. allowed | 7.90 |

## Mill Products

### Aluminum

*(Base prices, cents per pound, base 30,000 lb., f.o.b. shipping point, freight allowed.)*

**Flat Sheet:** 0.188 in., 2S, 3S, 25.7¢; 4S, 61S-O, 27.8¢; 52S, 29.9¢; 24S-O, 24S-OAL, 28.8¢; 75S-O, 75S-OAL, 35.3¢. 0.081 in., 2S, 3S, 26.8¢; 4S, 61S-O, 29.2¢; 52S, 31.3¢; 24S-O, 24S-OAL, 29.9¢; 75S-O, 75S-OAL, 37.0¢. 0.032 in., 2S, 3S, 28.5¢; 4S, 61S-O, 32.5¢; 52S, 35.2¢; 24S-O, 24S-OAL, 36.9¢; 75S-O, 75S-OAL, 46.6¢.

**Plate:** ¼ in. and heavier; 2S, 3S, 22.8¢; 4S-F, 25.0¢; 52S, 26.1¢; 61S-O, 25.6¢; 24S-F, 24S-FAL, 26.1¢; 75S, 75S-AL, 32.9¢.

**Extruded Solid Shapes:** Shape factors 1 to 4; 31¢ to 59¢; 11 to 13, 31.9¢ to 69c; 23 to 25, 33.4c to 90¢; 35 to 37, 40.8¢ to $1.25; 47 to 49, 58.7¢ to $1.84.

**Extruded Round Rod, Square, Hex, Octagonal Bar:** ¼ in. and over, 27¢ to 38¢; ½ to ¾ in., 28¢ to 40.5¢; ⅜ to ½ in., 29c to 43c; ¼ to ⅜ in., 30¢ to 46.5¢; 7/16 to 33/64 in., 32.5¢ to 53.5¢; 9/64 to 5/32 in., 35.5¢ to 62¢.

**Rolled Rod:** 1.064 to 4.5 in., 2S, 3S, 33¢ to 29.5¢; Cold-finished rod, 0.375 to 3.5 in., 2S, 3S, 35.5¢ to 31¢.

**Screw Machine Stock:** Drawn, 1/16 to 1½ in., 11S-T3, R317-T4, 48¢ to 34¢; cold-finished, ⅜ to 1½ in., 11S-T3, 37.5¢ to 34.5¢; ⅜ to 2 in., R317-T4, 33¢ to 30¢; rolled, 1⅞ to 3 in., 11S-T3, 34.5¢ to 31.5¢; 2⅛ to 3⅜ in., R317-T4, 29.5¢ to 28.5¢. Base 5000 lb.

**Drawn Wire:** coiled, 0.051 to 0.374 in.; 2S, 35¢ to 25.5¢; 52S, 43c to 31c; 56S, 45.5c to 37¢; 17S-T4, 49¢ to 33.5¢; 61S-T4, 43.5c to 33c.; 75S-T6, 75¢ to 54¢.

### Magnesium

*(Cents per lb, f.o.b. mill, freights allowed. Base quantity 30,000 lb.)*

**Sheet and Plate:** Ma. FSa. ¼ in., 54¢-56¢; 0.188 in., 56¢-58¢; B & S gage 8, 58c-60c; 10, 59c-61c; 12, 63-65c; 14, 69c-74c; 16, 76c-81c; 18, 84c-89c 20, 96c-$1.01; 22, $1.22-$1.31; 24, $1.62-$1.75. Specification grade higher.

**Extruded Round Rod:** M, diam. in., ¼ to 0.311, 58¢; ½ to ¾, 46¢; 1¼ to 1.749, 43¢; 2½ to 5, 41¢. Other alloys higher.

**Extruded Square, Hex. Bar:** M, size across flats, in., ¼ to 0.311, 61¢; ½ to 0.749, 48¢ 1¼ to 1.749, 44¢; 2½ to 4, 42¢. Other alloys higher.

**Extruded Solid Shapes, Rectangles:** M, in weight per ft, for perimeters of less than size indicated, 0.10 to 0.11 lb. per ft, per. up to 3.5 in., 55¢; 0.22 to 0.25 lb per ft, per. up to 5.9 in., 51¢; 0.50 to 0.59 lb per ft, per. up to 8.6 in., 47¢; 1.8 to 2.59 lb per ft, per. up to 19.5 in., 44¢; 4 to 6 lb per ft, per. up to 28 in., 43¢. Other alloys higher.

**Extruded Round Tubing:** M, wall thickness, outside diam, in., 0.049 to 0.057, ¼ to ⅝ $1.14; ⅝ to ⅞, $1.02; ½ to ⅝, 76¢; 1 to 2 in., 65¢. 0.065 to 0.082, ⅜ to ⅞, 85¢; ⅝ to ¾, 62¢; 1 to 2 in., 57¢. 0.165 to 0.219, ⅝ to ⅞, 54.5¢; 1 to 2 in., 53¢; 3 to 4 in., 49¢. Other alloys higher.

### Nickel and Monel

*(Cents per lb, f.o.b. mill)*

| | Nickel | Monel |
|---|---|---|
| Sheets, cold-rolled | 60 | 47 |
| Strip, cold-rolled | 66 | 50 |
| Rods and shapes | | |
| Hot-rolled | 56 | 45 |
| Cold-drawn | 56 | 45 |
| Angles, hot-rolled | 56 | 45 |
| Plates | 58 | 46 |
| Seamless tubes | 89 | 80 |
| Shot and blocks | | 40 |

### Copper, Brass, Bronze

*(Cents per pound, freight prepaid on 200 lb)*

| | Extruded Shapes | Rods | Sheets |
|---|---|---|---|
| Copper | 34.78 | .... | 35.18 |
| Copper, hot-rolled | .... | 31.28 | .... |
| Copper, drawn | .... | 32.28 | .... |
| Low brass | 35.86* | 32.64 | 32.95 |
| Yellow brass | 34.42* | 31.10 | 31.41 |
| Red brass | 36.39* | 33.17 | 33.48 |
| Naval brass | 31.53 | 30.28 | 36.22 |
| Leaded brass | 29.89 | 25.94 | .... |
| Commercial bronze | 37.18* | 34.21 | 34.52 |
| Manganese bronze | 35.12 | 33.62 | 39.72 |
| Phosphor bronze, 5 pct | 55.90* | 54.40 | 54.15 |
| Muntz metal | 31.05 | 29.80 | 34.24 |
| Everdur, Herculoy, Olympic, etc. | .... | 38.75 | 39.81 |
| Nickel silver, 10 pct | .... | 43.68 | 41.54 |
| Architectural bronze | 29.89 | .... | .... |

*Seamless tubing.

## Scrap Metals

### Brass Mill Scrap

*(Cents per pound; add 1¢ per lb for shipments of 15,000 lb or more.)*

| | Heavy | Turnings |
|---|---|---|
| Copper | 19⅛ | 18⅜ |
| Yellow brass | 15⅝ | 14⅜ |
| Red brass | 17½ | 16⅜ |
| Commercial bronze | 17⅝ | 16⅞ |
| Manganese bronze | 15¼ | 14⅜ |
| Leaded brass rod ends | 15⅝ | .... |

### Custom Smelters' Scrap

*(Cents per pound, carload lots, delivered to refinery.)*

| | |
|---|---|
| No. 1 copper, wire | 18.50–18.75 |
| No. 2 copper wire | 17.50–17.75 |
| Light copper | 16.50–16.75 |
| Refinery brass | 16.75* |

*Dry copper content.

### Ingot Makers' Scrap

*(Cents per pound, carload lots, delivered to producer.)*

| | |
|---|---|
| No. 1 copper, wire | 18.50 |
| No. 2 copper, wire | 17.50 |
| Light copper | 16.50 |
| No. 1 composition | 15.25 |
| No. 1 comp. turnings | 14.75 |
| Rolled brass | 11.75 |
| Brass pipe | 12.00 |
| Radiators | 12.50 |
| Heavy yellow brass | 11.00 |
| *Aluminum* | |
| Mixed old cast | 11.50 |
| Mixed old clips | 11.50 |
| Mixed turnings, dry | 11.00 |
| Pots & pans | 12.00 |
| Low copper | 12.50 |

### Dealers' Scrap

*(Dealers' buying prices, f.o.b. New York in cents per pound.)*

| | |
|---|---|
| **Copper and Brass** | |
| No. 1 heavy copper and wire | 16¾—17¼ |
| No. 2 heavy copper and wire | 15⅝—16⅛ |
| Light copper | 14½—15 |
| Auto radiators (unsweated) | 10 —10½ |
| No. 1 composition | 13 —13½ |
| No. 1 composition turnings | 12½—12 |
| Clean red car boxes | 10 —10¼ |
| Cocks and faucets | 10 —10½ |
| Mixed heavy yellow brass | 8½— 9 |
| Old rolled brass | 10 —10¼ |
| Brass pipe | 10½—10⅝ |
| New soft brass clippings | 12½—13 |
| Brass rod ends | 10¼—10⅝ |
| No. 1 brass rod turnings | 9¼—10⅛ |
| **Aluminum** | |
| Alum. pistons and struts | 8½— 9 |
| Aluminum crankcases | 11 —11½ |
| 2S aluminum clippings | 12½—13 |
| Old sheet & utensils | 11 —11½ |
| Dry borings and turnings | 5½— 6 |
| Misc. cast aluminum | 11 —11½ |
| Dural clips (24S) | 11 —11½ |
| **Zinc** | |
| New zinc clippings | 8½— 9 |
| Old zinc | 6½— 7 |
| Zinc routings | 3½— 4 |
| Old die cast scrap | 4½— 5 |
| **Nickel and Monel** | |
| Pure nickel clippings | 17 —18 |
| Clean nickel turnings | 13 —14 |
| Nickel anodes | 17 —18 |
| Nickel rod ends | 17 —18 |
| New Monel clippings | 12 —13 |
| Clean Monel turnings | 8 — 9 |
| Old sheet Monel | 10 —10½ |
| Old Monel castings | 7½— 8 |
| Inconel clippings | 9 —10 |
| Nickel silver clippings, mixed | 8 — 8½ |
| Nickel silver turnings, mixed | 6½— 7 |
| **Lead** | |
| Soft scrap lead | 16 —16½ |
| Battery plates (dry) | 10¼—10½ |
| **Magnesium Alloys** | |
| Segregated solids | 8 — 9 |
| Castings | 4½— 5½ |
| **Miscellaneous** | |
| Block tin | 81 —83 |
| No. 1 pewter | 65 —67 |
| No. 1 auto babbitt | 50 —52 |
| Mixed common babbitt | 14¼—14¾ |
| Solder joints | 19 —19½ |
| Siphon tops | 50 —52 |
| Small foundry type | 17½—18 |
| Monotype | 16¼—16¾ |
| Lino. and stereotype | 15½—16 |
| Electrotype | 13½—14 |
| New type shell cuttings | 14½—15 |
| Hand picked type shells | 6½— 7 |
| Lino and stereo dross | 8 — 8½ |
| Electro dross | 6 — 6½ |

# Comparison of Prices . .

Price advances over previous week are printed in Heavy Type; declines appear in *Italics*.

*Steel prices on this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.*

| Flat-Rolled Steel: (cents per pound) | July 27, 1948 | July 20, 1948 | June 29, 1948 | July 29, 1947 |
|---|---|---|---|---|
| Hot-rolled sheets | 3.26 | 2.775 | 2.775 | 2.80 |
| Cold-rolled sheets | 4.00 | 3.495 | 3.495 | 3.55 |
| Galvanized sheets (10 ga) | 4.40 | 3.913 | 3.913 | 3.95 |
| Hot-rolled strip | 3.265 | 2.775 | 2.775 | 2.80 |
| Cold-rolled strip | 4.00 | 3.535 | 3.535 | 3.55 |
| Plates | 3.425 | 2.93 | 2.93 | 2.95 |
| Plates wrought iron | 7.25 | 7.25 | 7.25 | 5.95 |
| Stain's C-R strip(No.302) | 30.50 | 30.50 | 30.50 | 30.50 |
| **Tin and Terneplate:** (dollars per base box) | | | | |
| Tinplate (1.50 lb) cokes.. | $6.80 | $6.70 | $6.70 | $5.75 |
| Tinplate, electro (0.50 lb) | 6.00 | 5.90 | 5.90 | 5.05 |
| Special coated mfg. ternes | 5.90 | 5.80 | 5.80 | 4.90 |
| **Bars and Shapes:** (cents per pound) | | | | |
| Merchant bars | 3.375 | 2.875 | 2.875 | 2.90 |
| Cold-finished bars | 3.994 | 3.483 | 3.483 | 3.55 |
| Alloy bars | 3.75 | 3.213 | 3.213 | 3.30 |
| Structural shapes | 3.25 | 2.767 | 2.767 | 2.80 |
| Stainless bars (No. 302) | 26.00 | 26.00 | 26.00 | 26.00 |
| Wrought iron bars | 8.65 | 8.65 | 8.65 | 6.15 |
| **Wire:** (cents per pound) | | | | |
| Bright wire | 4.344 | 3.608 | 3.608 | 3.55 |
| **Rails:** (dollars per 100 lb) | | | | |
| Heavy rails | $3.217 | $2.725 | $2.725 | $2.50 |
| Light rails | 3.575 | 3.05 | 3.05 | 2.85 |
| **Semifinished Steel:** (dollars per net ton) | | | | |
| Rerolling billets | $52.00 | $45.00 | $45.00 | $45.00† |
| Slabs, rerolling | 52.00 | 45.00 | 45.00 | 45.00† |
| Forging billets | 61.00 | 54.00 | 54.00 | 55.00† |
| Alloy blooms, billets, slabs | 63.00 | 66.00† | 66.00† | 66.00† |
| **Wire Rods and Skelp:** (cents per pound) | | | | |
| Wire rods | 3.619 | 3.133 | 3.133 | 2.80 |
| Skelp | 3.25 | 2.888 | 2.888 | 2.35 |

† Gross ton

| Pig Iron: (per gross ton) | July 27, 1948 | July 20, 1948 | June 29, 1948 | July 29, 1947 |
|---|---|---|---|---|
| No. 2, foundry, Phila. | $46.76 | $44.74 | $44.74 | $40.39 |
| No. 2, Valley furnace | 43.50 | 43.50 | 39.50 | 36.50 |
| No. 2, Southern Cinti. | 48.14 | 48.14 | 45.47 | 38.25 |
| No. 2, Birmingham | 42.05 | 42.05 | 39.38 | 33.38 |
| No. 2, foundry, Chicago† | 43.00 | 43.00 | 39.00 | 36.00 |
| Basic del'd Philadelphia | 46.25 | 44.24 | 44.24 | 39.89 |
| Basic, Valley furnace | 43.00 | 43.00 | 39.00 | 36.00 |
| Malleable, Chicago† | 43.50 | 43.50 | 39.50 | 36.50 |
| Malleable, Valley | 43.50 | 43.50 | 39.50 | 36.50 |
| Charcoal, Chicago | 65.55 | 65.55 | 65.55 | 48.49 |
| Ferromanganese‡ | 145.00 | 145.00 | 145.00 | 135.00 |

† The switching charge for delivery to foundries in the Chicago district is $1 per ton.
‡ For carlots at seaboard.

| Scrap: (per gross ton) | | | | |
|---|---|---|---|---|
| Heavy melt'g steel, P'gh. | 42.75 | $40.25 | $40.25 | $41.75 |
| Heavy mlt'g steel, Phila. | 45.00 | 42.50 | 42.50 | 40.50 |
| Heavy melt'g steel, Ch'go | 41.75 | 41.25 | 39.25 | 40.25 |
| No. 1, hy, comp. sh't, Det. | *38.00* | 38.25 | 35.50 | 37.50 |
| Low phos. Young'n | 47.75 | 45.25 | 45.25 | 46.50 |
| No. 1, cast, Pittsburgh | 63.75 | 63.75 | 63.75 | 39.75 |
| No. 1, cast, Philadelphia. | 65.50 | 65.50 | 67.00 | 48.50 |
| No. 1, cast, Chicago | 73.00 | 73.00 | 69.50 | 47.50 |
| **Coke, Connellsville:** (per net ton at oven) | | | | |
| Furnace coke, prompt | $13.75 | $13.75 | $12.75 | $12.00 |
| Foundry coke, prompt | 16.50 | 16.50 | 16.50 | 13.75 |
| **Nonferrous Metals:** (cents per pound to large buyers) | | | | |
| Copper, electro. Conn. | 21.50 | 21.50 | 21.50 | 21.50 |
| Copper, Lake Conn. | 21.625 | 21.625 | 21.625 | 21.625 |
| Tin, Grade A, New York. | $1.03 | $1.03 | $1.03 | 80.00 |
| Zinc, East St. Louis | 12.00 | 12.00 | 12.00 | 10.50 |
| Lead, St. Louis | 17.30 | 17.30 | 17.30 | 14.80 |
| Aluminum, virgin | 16.00 | 16.00 | 16.00 | 15.00 |
| Nickel, electrolytic | 42.81 | 36.56 | 36.56 | 37.67 |
| Magnesium, ingot | 20.50 | 20.50 | 20.50 | 20.50 |
| Antimony, Laredo, Tex. | 35.00 | 35.00 | 35.00 | 33.00 |

# Composite Prices . .

Starting with the issue of Apr. 22, 1943, the weighted finished steel index was revised for the years 1941, 1942, and 1943. See explanation of the change on p. 90 of the Apr. 22, 1943, issue. Index revised to a quarterly basis as of Nov. 16, 1944; for details see p. 98 of that issue. The finished steel composite price for the current quarter is an estimate based on finished steel shipments for the previous quarter. This figure will be revised when shipments for this quarter are compiled.

| | FINISHED STEEL (Base Price) | PIG IRON | SCRAP STEEL |
|---|---|---|---|
| July 27, 1948 | $3.77117¢ per lb. | $43.72 per gross ton | $43.16 per gross ton |
| One week ago | 3.24473¢ per lb. | $42.96 per gross ton | $41.33 per gross ton |
| One month ago | 3.24473¢ per lb. | $40.51 per gross ton | $40.66 per gross ton |
| One year ago | 3.16613¢ per lb. | $36.38 per gross ton | $40.83 per gross ton |

| | HIGH | LOW |
|---|---|---|
| 1948 | 3.27585¢ Feb. 17 | 3.22566¢ Jan. 1 |
| 1947 | 3.19541¢ Oct. 7 | 2.87118¢ Jan. 7 |
| 1946 | 2.83599¢ Dec. 31 | 2.54490¢ Jan. 1 |
| 1945 | 2.44104¢ Oct. 2 | 2.38444¢ Jan. 2 |
| 1944 | 2.30837¢ Sept. 5 | 2.21189¢ Oct. 5 |
| 1943 | 2.29176¢ | 2.29176¢ |
| 1942 | 2.28249¢ | 2.28249¢ |
| 1941 | 2.43078¢ | 2.43078¢ |
| 1940 | 2.30467¢ Jan. 2 | 2.24107¢ Apr. 16 |
| 1939 | 2.35367¢ Jan. 3 | 2.26689¢ May 16 |
| 1938 | 2.58414¢ Jan. 4 | 2.27207¢ Oct. 18 |
| 1937 | 2.58414¢ Mar. 9 | 2.32263¢ Jan. 4 |
| 1936 | 2.32263¢ Dec. 28 | 2.05200¢ Mar. 10 |
| 1935 | 2.07642¢ Oct. 1 | 2.06492¢ Jan. 8 |
| 1934 | 2.15367¢ Apr. 24 | 1.95757¢ Jan. 2 |
| 1933 | 1.95578¢ Oct. 3 | 1.75836¢ May 2 |
| 1932 | 1.89196¢ July 5 | 1.83901¢ Mar. 1 |
| 1931 | 1.99626¢ Jan. 13 | 1.86586¢ Dec. 29 |
| 1930 | 2.25488¢ Jan. 7 | 1.97319¢ Dec. 9 |
| 1929 | 2.31773¢ May 28 | 2.26498¢ Oct. 29 |

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold-rolled sheets and strip, representing major portion of finished steel shipments. Index recapitulated in Aug. 28, 1941, issue.

| | HIGH | LOW |
|---|---|---|
| 1948 | $43.72 July 27 | $39.58 Jan. 6 |
| 1947 | 37.98 Dec. 30 | 30.14 Jan. 7 |
| 1946 | 30.14 Dec. 10 | 25.37 Jan. 1 |
| 1945 | 25.37 Oct. 23 | 23.61 Jan. 2 |
| 1944 | $23.61 | $23.61 |
| 1943 | 23.61 | 23.61 |
| 1942 | 23.61 | 23.61 |
| 1941 | $23.61 Mar. 20 | $23.45 Jan. 2 |
| 1940 | 23.45 Dec. 23 | 22.61 Jan. 2 |
| 1939 | 22.61 Sept. 19 | 20.61 Sept. 12 |
| 1938 | 23.25 June 21 | 19.61 July 6 |
| 1937 | 23.25 Mar. 9 | 20.25 Feb. 16 |
| 1936 | 19.74 Nov. 24 | 18.73 Aug. 11 |
| 1935 | 18.84 Nov. 5 | 17.83 May 14 |
| 1934 | 17.90 May 1 | 16.90 Jan. 27 |
| 1933 | 16.90 Dec. 5 | 13.56 Jan. 3 |
| 1932 | 14.81 Jan. 5 | 13.56 Dec. 6 |
| 1931 | 15.90 Jan. 6 | 14.79 Dec. 15 |
| 1930 | 18.21 Jan. 7 | 15.90 Dec. 16 |
| 1929 | 18.71 May 14 | 18.21 Dec. 17 |

Based on averages for basic iron at valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

| | HIGH | LOW |
|---|---|---|
| 1948 | $43.16 July 27 | $39.75 Mar. 9 |
| 1947 | 42.58 Oct. 28 | 29.50 May 20 |
| 1946 | 31.17 Dec. 24 | 19.17 Jan. 1 |
| 1945 | 19.17 Jan. 2 | 18.92 May 22 |
| 1944 | 19.17 Jan. 11 | 15.76 Oct. 24 |
| 1943 | $19.17 | $19.17 |
| 1942 | 19.17 | 19.17 |
| 1941 | $22.00 Jan. 7 | $19.17 Apr. 10 |
| 1940 | 21.83 Dec. 30 | 16.04 Apr. 9 |
| 1939 | 22.50 Oct. 3 | 14.08 May 16 |
| 1938 | 15.00 Nov. 22 | 11.00 June 7 |
| 1937 | 21.92 Mar. 30 | 12.67 June 9 |
| 1936 | 17.75 Dec. 21 | 12.67 June 8 |
| 1935 | 13.42 Dec. 10 | 10.33 Apr. 29 |
| 1934 | 13.00 Mar. 13 | 9.50 Sept. 25 |
| 1933 | 12.25 Aug. 8 | 6.75 Jan. 3 |
| 1932 | 8.50 Jan. 12 | 6.43 July 5 |
| 1931 | 11.33 Jan. 6 | 8.50 Dec. 29 |
| 1930 | 15.00 Feb. 18 | 11.25 Dec. 9 |
| 1929 | 17.58 Jan. 29 | 14.08 Dec. 8 |

Based on No. 1 heavy melting steel scrap quotations to consumers at Pittsburgh, Philadelphia and Chicago.

# Iron and Steel Prices . . .

Steel prices shown here are f.o.b. producing points in cents per pound unless otherwise indicated. Extras apply (1) Commercial quality sheet grade; prices, 0.25¢ above base. (2) Commercial quality grade. (3) Widths up to 12-in. inclusive. (4) 0.25 carbon and less. (5) Cokes, 1.25 lb, deduct 20¢ per base box. (6) 18 gage and heavier. (7) For straight length material only from producers to fabricators. (8) Also shafting. For quantities of 40,000 lb and over. (9) Carload lot in manufacturing trade. (10) Hollowware enameling, gages 29 to 31 only. (11) Produced to dimensional tolerances in AISI Manual Sec. 6. (12) Slab prices subject to negotiation in most cases. (13) Seattle only.

| PRODUCTS | Prices at producing points apply to the sizes and grades produced in these areas. | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pittsburgh | Chicago | Gary | Cleveland | Birmingham | Buffalo | Youngstown | Sparrows Point | Granite City | Middletown, Ohio | | San Francisco, Los Angeles | Detroit | Johnstown |
| INGOTS Carbon forging | $50.00 | Rerolling ingots— per net ton f.o.b. mill (Spot market as $75 to $90 per gross ton) | | | | | | | | | | | | |
| Alloy | $51.00 | | | | | | | | | | Canton | | | |
| BILLETS, BLOOMS, SLABS Carbon, rerolling [12] | $52.00 | | | | $52.00 | $52.00 | (per net ton) | | | | | | | $52.00 |
| Carbon forging billets | $61.00 | $61.00 | $61.00 | | $61.00 | $61.00 | (per net ton) | | | | | | | $61.00 |
| Alloy | $63.00 | $63.00 | | | | (Bethlehem = $63.00) (per net ton) | | | | | | | | |
| PIPE SKELP | 3.25 | | | | | | 3.25 | | | | | | | |
| WIRE RODS | 3.40 to 4.15 | 3.40 to 3.90 | | 3.40 | 3.40 | | 3.65 | 3.50 | | | Worcester 3.70 | 4.05 | | 3.40 |
| SHEETS Hot-rolled [6] | 3.25 to 3.30 | 3.25 | 3.25 | 3.25-3.30 | 3.25 | 3.30 | 3.25 | | | Ashland, Ky. =3.25 | | 3.95 | 3.45 | |
| Cold-rolled [1] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.10 | 4.00 | | | 4.00 | | | 4.20 | |
| Galvanized (10 gage) | 4.40 | 4.40 | 4.40 | | 4.40 | | | 4.50 | | 4.40 | Ashland =4.40 | 5.15 | | |
| Enameling (12 gage) | 4.40 | 4.40 | 4.40 | | | | 4.40 | | | 4.40 | | | 4.70 | |
| Long ternes [2] (10 gage) | 4.80 | | 4.80 | | | | | | | 4.80 | | | | |
| STRIP Hot-rolled [3] | 3.25 to 3.30 | 3.25 to 3.30 | 3.25 | 3.25 to 3.30 | 3.25 | 3.30 | 3.25 | 3.30 | | 3.25 | | 4.00 to 4.25 | 3.45 | |
| Cold-rolled [4] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.10 | 4.00 | | | New Haven = 4.00 | | | 4.20 | |
| TINPLATE Cokes, 1.50 lb, [5] base box | 6.80 | 6.80 | 6.80 | | 6.90 | | | 6.90 | 6.90 | (Warren, Ohio = $6.80) | | | | |
| Electrolytic 0.25, 0.50, 0.75 lb, box | Deduct $1.00, 80¢ and 60¢ respectively from 1.50 lb coke base box price. | | | | | | | | | | | | | |
| TERNES, MFG., special coated | Deduct 90¢ from 1.50 lb coke base box price. | | | | | | | | | | | | | |
| BLACKPLATE, CANMAKING 55-70 lb, 75-95 lb, 100-128 lb | Deduct $1.60, $1.70 and $1.60 respectively from 1.50 lb coke base box price. | | | | | | | | | | | | | |
| BLACKPLATE, h.e., 29 ga. [10] | 4.75 | 4.75 | 4.75 | | | | | 4.85 | | | | | | |
| BARS Carbon Steel | 3.35 to 3.55 | 3.35 | 3.35 | 3.35 | 3.35 | 3.35 to 3.40 | 3.35 | | | 3.35 | | 4.05 to 4.10 | | 3.40 |
| Reinforcing (billet) [7] | 3.35 | 3.35 | 3.35 | 3.35 | 3.35 | 3.40 | 3.35 | 3.40 | | | | 4.05 to 4.10 | | 3.40 |
| Cold-finished [8] | 3.95 to 4.00 | 4.00 | | 4.00 | | | 4.00 | | | | | | 4.30 | |
| Alloy, hot-rolled | 3.75 | 3.75 | 3.75 | | | 3.85 | 3.75 | Bethlehem = 3.85 | | | | 4.80 | | 3.85 |
| Alloy, cold-drawn | | | | | | | | Massillon, Canton | | | | | | |
| PLATE Carbon steel [11] | 3.40 to 3.60 | 3.40 | 3.40 | 3.40 | 3.40 | 3.45 | 3.40 | Coatesville = 3.75, Claymont = 3.95 Geneva, Utah = 3.40 | | | | 4.30 [13] | 3.65 | 3.45 |
| Floor plates | 4.55 | 4.55 | | 4.55 | | | | | | | | | | |
| Alloy | 4.40 | 4.40 | | | | | | | Coatesville = 5.10 | | | | | |
| SHAPES, Structural | 3.25 | 3.25 | 3.25 | | 3.25 | 3.30 | Bethlehem = 3.30, Geneva, Utah = 3.25 | | | | | 3.85 | | 3.30 |
| MANUFACTURERS' WIRE [9] Bright | 4.15 to 4.50 | 4.15 to 4.65 | | 4.15 | 4.15 | | 4.50 | 4.25 | Duluth, Worcester = 4.15 | | | 5.10 | | 4.15 |
| Spring (high carbon) | 5.20 | 5.20 | | 5.20 | | | | 5.30 | Worcester = 5.50 New Haven, Trenton = 5.50 | | | Duluth = 5.20 | | 5.20 |
| PILING, Steel sheet | 4.05 | 4.05 | | | | 4.05 | | | | | | | | |

## CORROSION AND HEAT RESISTANT STEELS

In cents per pound, f.o.b. producing point

| Producing Point | Chromium Nickel | | Straight Chromium | | | |
|---|---|---|---|---|---|---|
| | No. 304 | No. 302 | No. 410 | No. 430 | No. 442 | No. 446 |
| Billets, forging, P'gh, Chi, Canton, Dunkirk, Balt, Phila, Reading, Water, Syracuse, Ft. Wayne, Titusville, Beth, Brackenridge | 23.00 | 22.50 | 17.50 | 17.50 | 21.00 | 25.50 |
| Bars, h-r, P'gh, Chi, Canton, Dunkirk, Watervliet, Syracuse, Balt, Phila, Reading, Ft. Wayne, Titusville, Beth, Brackenridge | 27.50 | 26.00 | 20.50 | 21.00 | 24.50 | 30.00 |
| Bars, c-f, P'gh, Chi, Cleve, Canton, Dunkirk, Syracuse, Balt, Phila, Reading, Ft. Wayne, Watervliet, Beth, Brackenridge | 27.50 | 26.00 | 20.50 | 21.00 | 24.50 | 30.00 |
| Plates, P'gh, Middletown, Canton, Brackenridge, Balt, Coatesville | 31.50 | 29.50 | 23.50 | 24.00 | 28.00 | 33.00 |
| Shapes, structural, P'gh, Chi, Brackenridge | 27.50 | 26.00 | 20.50 | 21.00 | 24.50 | 30.00 |
| Sheets, P'gh, Chi, Middletown, Canton, Balt, Brackenridge | 39.00 | 37.00 | 29.00 | 31.50 | 35.50 | 39.50 |
| Strip, h-r, P'gh, Chi, Reading, Canton, Youngstown | 25.50 | 23.50 | 18.50 | 19.00 | 26.00 | 38.00 |
| Strip, c-r, P'gh, Cleve, Jersey City, Reading, Canton, Youngstown, Balt, W. Leechburg | 32.50 | 30.50 | 24.00 | 24.50 | 35.00 | 56.50 |
| Wire, c-d, Cleve, Dunkirk, Syracuse, Balt, Reading, Canton, P'gh, Newark, N. J., Phila, Ft. Wayne, Brackenridge | 27.50 | 26.00 | 20.50 | 21.00 | 24.50 | 30.00 |
| Wire, flat, c-r, Cleve, Balt, Reading, Dunkirk, Canton, W. Leechburg | 32.46 | 30.30 | 23.80 | 24.34 | 34.82 | 56.26 |
| Rod, h-r, Syracuse | 27.05 | 25.97 | 20.02 | 20.56 | 24.34 | 28.75 |
| Tubing, seamless, P'gh, Chi, Canton, Brackenridge, Milwaukee | 72.09 | 72.09 | ..... | 68.49 | ..... | ..... |

## ELECTRODES

Cents per lb, f.o.b. plant, threaded electrodes with nipples, unboxed

| Diameter in in. | Length in in. | |
|---|---|---|
| **Graphite** | | |
| 17, 18, 20 | 60, 72 | 14.00¢ |
| 8 to 16 | 48, 60, 72 | 14.50¢ |
| 7 | 48, 60 | 15.75¢ |
| 6 | 48, 60 | 17.00¢ |
| 4, 5 | 40 | 17.50¢ |
| 3 | 40 | 18.50¢ |
| 2½ | 24, 30 | 19.00¢ |
| 2 | 24, 30 | 21.00¢ |
| **Carbon** | | |
| 40 | 100, 110 | 6.75¢ |
| 35 | 65, 110 | 6.75¢ |
| 30 | 65, 84, 110 | 6.75¢ |
| 24 | 72 to 104 | 6.75¢ |
| 17 to 20 | 84, 90 | 6.75¢ |
| 14 | 60, 72 | 7.25¢ |
| 10, 12 | 60 | 7.50¢ |
| 8 | 60 | 7.75¢ |

## TOOL STEEL

*(F.o.b. mill)*

| W | Cr | V | Mo | Co | Base per lb |
|---|---|---|---|---|---|
| 18 | 4 | 1 | — | — | 82¢ |
| 18 | 4 | 1 | — | 5 | $1.29 |
| 18 | 4 | 2 | — | — | 93¢ |
| 1.5 | 4 | 1.5 | 8 | — | 59¢ |
| 6 | 4 | 2 | 6 | — | 63¢ |

| | |
|---|---|
| High-carbon-chromium | 47¢ |
| Oil hardening manganese | 26¢ |
| Special carbon | 24¢ |
| Extra carbon | 20¢ |
| Regular carbon | 17¢ |

Warehouse prices on and east of Mississippi are 2¢ per lb higher. West of Mississippi, 4¢ higher.

## ELECTRICAL SHEETS

*Base, all grades f.o.b. mill*

| | Per lb |
|---|---|
| Armature | 5.45¢ |
| Electrical | 5.95¢ |
| Motor | 6.70¢ |
| Dynamo | 7.40 to 7.50¢ |
| Transformer 72 | 8.05 to 8.15¢ |
| Transformer 65 | 8.60 to 9.10¢ |
| Transformer 58 | 9.30 to 9.80 |
| Transformer 52 | 10.10¢ |

## RAILS, TRACK SUPPLIES

*(F.o.b. mill)*

Standard rails, 100 lb and heavier, No. 1 O.H., per 100 lb.....$3.20 to $3.25
Joint bars, 100 lb.....4.25 to 4.35
Light rails (from billets) per 100 lb.....3.55 to 3.60

| | *Base per lb* |
|---|---|
| Cut spikes | 5.35¢ |
| Screw spikes | |
| Tie plate, steel | 4.05 to 4.25¢ |
| Tie plates, Pittsburg, Calif.* | 4.20¢ |
| Track bolts | 7.50¢ |
| Track bolts, heat treated, to railroads | |

*Seattle, add 30¢.

## C-R SPRING STEEL

*Base per pound f.o.b. mill*

| | |
|---|---|
| 0.08 to 0.40 carbon | 4.00¢ |
| 0.41 to 0.60 carbon | 5.50¢ |
| 0.61 to 0.80 carbon | |
| 0.81 to 1.05 carbon | |
| 1.06 to 1.35 carbon | |
| Worcester, add 0.20¢ | |

## CLAD STEEL

*Base prices, cents per pound*

| Stainless-clad | Plate | Sheet |
|---|---|---|
| No. 304, 20 pct, f.o.b. Pittsburgh, Washington, Coatesville, Pa. | *24.00 | *22.00 |
| Nickel-clad 10 pct f.o.b. Coatesville, Pa. | 21.50 | |
| Inconel-clad 10 pct, f.o.b. Coatesville | 30.00 | |
| Monel-clad 10 pct, f.o.b. Coatesville | 24.00 | |
| Aluminized steel Hot dip, 20 gage, f.o.b. Pittsburgh | .... | 9.00 |

* Includes annealing and pickling, or sandblasting.

## MERCHANT WIRE PRODUCTS

*To the dealer, f.o.b. mill*

| | Base Column | Pittsburg, Calif. |
|---|---|---|
| Standard & coated nails* | 103 | 123 |
| Galvanized nails* | 103 | 123 |
| Woven wire fence† | 109 | 132 |
| Fence posts, carloads†† | 114 | ... |
| Single loop bale ties | 106 | 130 |
| Galvanized barbed wire** | 123 | 143 |
| Twisted barbless wire | 123 | ... |

* Pgh., Chi., Duluth; Worcester, 6 columns higher. † 15½ gage and heavier. ** On 80 rod spools, in carloads. †† Duluth only.

| | *Base per 100 lb* | *Pittsburg, Calif.* |
|---|---|---|
| Annealed fence wire‡ | $4.80 | $5.75 |
| Annealed, galv. fencing‡ | 5.25 | 6.20 |
| Cut nails, carloads‡ | 6.75 | .... |

‡ Add 30¢ at Worcester; 10¢ at Sparrows Pt. (less 20¢ to jobbers).

## HIGH STRENGTH, LOW ALLOY STEELS

mill prices, cents per pound

| Steel | Alde-cor | Corten | Double Strength No. 1 | Dyn-alloy | HI Steel | Mayari R | Otis-coloy | Yoloy | NAX High Tensile |
|---|---|---|---|---|---|---|---|---|---|
| Producer | Republic | Carnegie-Illinois, Republic | Republic | Alan Wood | Inland | Bethlehem | Jones & Laughlin | Youngstown Sheet & Tube | Great Lakes Steel |
| Plates | | 5.20 | | | 5.20 | 5.30 | 5.20 | 5.20 | 5.65 |
| Sheets | | | | | | | | | |
| Hot-rolled | | 4.95 | | | 4.95 | 5.05 | 4.95 | 4.95 | 5.25 |
| Cold-rolled | | 6.05 | | .... | 6.05 | 6.15 | 6.05 | 6.05 | 6.35 |
| Galvanized | | 6.75 | .... | .... | .... | 6.85 | .... | .... | .... |
| Strip | | | | | | | | | |
| Hot-rolled | | 4.95 | | .... | 4.95 | 5.05 | 4.95 | 4.95 | 5.25 |
| Cold-rolled | .... | | | .... | .... | 6.15 | 6.05 | | 6.35 |
| Shapes | .... | 4.95 | .... | .... | 4.95 | 5.05 | 4.95 | | .... |
| Beams | .... | 4.95 | .... | .... | | .... | .... | .... | .... |
| Bars | | | | | | | | | |
| Hot-rolled | | 5.10 | | .... | 5.10 | 5.20 | 5.10 | | 5.40 |
| Bar shapes | .... | 5.10 | .... | .... | 5.10 | 5.20 | 5.10 | | |

† Pittsburgh, add 0.10¢ at Chicago and Gary.

## PIPE AND TUBING

*Base discounts, f.o.b. mills, steel buttweld and seamless. Base price, $200.00 per net ton.*

Some steel pipe producers allow 1 to 2 points less discount (higher price).

### *Standard, threaded and coupled*

| Steel, buttweld | Black | Galv. |
|---|---|---|
| ½-in. | 43 | 25½ |
| ¾-in | 46 | 29½ |
| 1-in. | 48½ | 32½ |
| 1¼-in. | 49 | 33 |
| 1½-in. | 47½ | 33½ |
| 2-in. | 50 | 34 |
| 2½ and 3-in. | 50½ | 34½ |
| **Wrought Iron, buttweld** | | |
| ⅛-in. | | |
| ¾-in. | | |
| 1 and 1¼-in. | | |
| 1½-in. | | |
| 2-in. | | |
| **Steel, lapweld** | | |
| 2-in. | 39½ | 23 |
| 2½ and 3-in. | 43½ | 27 |
| 3½ to 6-in. | 45½ | 29 |
| **Steel, seamless** | | |
| 2-in. | 38½ | 22 |
| 2½ adn 3-in. | 41½ | 25 |
| 3½ to 6-in. | 43½ | 27 |
| **Wrought Iron, lapweld** | | |
| 2-in. | | |
| 2½ to 3½-in. | | |
| 4-in. | | |
| 4½ to 8-in. | | |

### *Extra Strong, plain ends*

| Steel, buttweld | | |
|---|---|---|
| ½-in. | 41 | 25 |
| ¾-in. | 45 | 29 |
| 1-in. | 47 | 32 |
| 1¼-in. | 47½ | 32½ |
| 1½-in. | 48 | 33 |
| 2-in. | 48½ | 33½ |
| 2½ and 3-in. | 49 | 34 |
| **Wrought Iron, buttweld** | | |
| ⅛-in | + 6½ | +29 |
| ¼-in. | + ½ | +23 |
| 1 and 1¼-in. | 4 | +16½ |
| 2-in. | 10 | +12½ |
| **Steel, lapweld** | | |
| 2-in. | 38½ | 23 |
| 2½ and 3-in | 43½ | 28 |
| 3½ to 6-in. | 45½ | 29 |
| **Steel, seamless** | | |
| 2-in. | 37½ | 22 |
| 2½ and 3-in. | 41½ | 26 |
| 3½ and 6-in. | 45 | 29½ |
| **Wrought Iron, lapweld** | | |
| 2-in. | | |
| 2½ to 4-in. | | |
| 4½ to 6-in. | | |

Basing discounts for standard pipe are for threads and couplings. For threads only, buttweld, lapweld and seamless pipe, one point higher discount (lower price) applies. For plain ends, buttweld, lapweld and seamless pipe 3-in. and smaller, three points higher discount (lower price) applies, while for lapweld and seamless 3½-in. and larger four points higher discount (lower price) applies. F.o.b. Gary prices are one point lower discount on all buttweld. On buttweld and lapweld steel pipe, jobbers are granted a discount of 5 pct. On l.c.l. shipments, prices are determined by adding 25 pct and 30 pct and the carload freight rate to the base card.

## BOILER TUBES

*Seamless steel and electric welded commercial boiler tubes and locomotive tubes, minimum wall. Net base prices per 100 ft. f.o.b. mill in carload lots, cut length 4 to 24 ft. inclusive.*

| OD in in. | Gage BWG | Seamless Hot-Rolled | Seamless Cold-Drawn |
|---|---|---|---|
| 2 | 13 | $19.18 | $22.56 |
| 2½ | 12 | 25.79 | 30.33 |
| 3 | 12 | 28.68 | 33.76 |
| 3½ | 11 | 35.85 | 42.20 |
| 4 | 10 | 44.51 | 52.35 |

## CAST IRON WATER PIPE

*Per net ton*

6-in. to 24-in., del'd Chicago..... $98.70
6-in. to 24-in., del'd New York..... 95.50
6-in. to 24-in., Birmingham..... 85.50
6-in. and larger, f.o.b. cars, San Francisco, Los Angeles, for all rail shipment; rail and water shipment less ..... 112.30

Class "A" and gas pipe, $5 extra; 4-in. pipe is $5 a ton above 6-in.

## BOLTS, NUTS, RIVETS, SET SCREWS

### *Consumer Prices*

*(Bolts and nuts f.o.b. Pittsburgh, Cleveland, Birmingham or Chicago)*

*Base discount less case lots*

### *Machine and Carriage Bolts*

*Percent Off List*

½ in. & smaller x 6 in. & shorter .. 45
9/16 & ⅝ in. x 6 in. & shorter..... 46
¾ in. & larger x 6 in. & shorter..... 43
All diam, longer than 6 in. ..... 41
Lag, all diam over 6 in. long..... 44
Lag, all diam x 6 in. & shorter..... 46
Plow bolts ..... 54

### *Nuts, Cold Punched or Hot Pressed*

*(Hexagon or Square)*

½ in. and smaller ..... 43
9/16 to 1 in. inclusive ..... 42
1⅛ to 1½ in. inclusive ..... 40
1⅝ in. and larger ..... 35

On above bolts and nuts, excepting plow bolts, additional allowance of 15 pct for full container quantities. There is an additional 5 pct allowance for carload shipments.

| *Semifin. Hexagon Nuts* | USS | SAE |
|---|---|---|
| 7/16 in. and smaller .... | .. | 46 |
| ½ in. and smaller ..... | 44 | .. |
| ½ in. through 1 in. ..... | | 44 |
| 9/16 in. through 1 in. ... | 43 | .. |
| 1⅛ in. through 1½ in. .. | 41 | 42 |
| 1⅝ in. and larger ..... | 35 | .. |

In full case lots, 15 pct additional discount. For 200 lb or more, freight allowed up to 50¢ per 100 lb, based on Cleveland, Chicago, Pittsburgh.

### *Stove Bolts*

Packages, nuts separate .....65 and 10
In bulk ..... 75

On stove bolts freight allowed up to 65¢ per 100 lb based on Cleveland, Chicago, New York on lots of 200 lb or over

### *Large Rivets*

*(½ in. and larger) Base per 100 lb*

F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham ..... $5.65
F.o.b. Lebanon, Pa. ..... 5.80

### *Small Rivets*

*(7/16 in. and smaller) Percent Off List*

F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham ..... 55

### *Cap and Set Screws*

*(In packages) Percent Off List*

Hexagon head cap screws, coarse or fine thread, up to and incl. 1 in. x 6 in., SAE 1020, bright ..... 53
¾ to 1 in. x 6 in., SAE 1035, heat treated ..... 44
Set screws, oval points ..... 57
Milled studs ..... 29
Flat head cap screws, listed sizes... 16
Fillister head cap, listed sizes ..... 37

Freight allowed up to 65¢ per 100 lb based on Cleveland, Chicago or New York on lots of 200 lb or over.

## FLUORSPAR

Metallurgical grade, f.o.b. producing plant.

| Effective $CaF_2$ Content | Base price per short ton |
|---|---|
| 70% or more ..... | $35.00 |
| 65% but less than 70% ..... | 34.00 |
| 60% but less than 65%..... | 33.00 |
| Less than 60% ..... | 32.00 |

## LAKE SUPERIOR ORES

*(51.50% Fe, Natural Content, Delivered Lower Lake Ports)*

*Per Gross Ton*

Old range, bessemer..... $6.60
Old range, nonbessemer..... 6.45
Mesabi, bessemer ..... 6.35
Mesabi, nonbessemer ..... 6.20
High phosphorus ..... 6.20

Increases or decreases in freight rates, dock handling charges and taxes after Apr. 1, 1948, are to be added to above prices.

## METAL POWDER

*Per pound, f.o.b. shipping point, in ton lots, for minus 100 mesh.*

Swedish sponge iron c.l.f. New York, ocean bags..... 7.9¢ to 9.0¢
Domestic sponge iron, 98+% Fe ..... 9.5¢ to 16.0¢
Electrolytic iron, annealed, 99.5+% Fe .....19.5¢ to 39.5¢
Electrolytic iron, unannealed, minus 325 mesh, 99+% Fe. 44.0¢
Hydrogen reduced iron, minus 300 mesh, 98+% Fe...63.0¢ to 80.0¢
Carbonyl iron, minus 300 mesh, 98%, 99.8+% Fe....90.0¢ to $1.75
Aluminum ..... 23.0¢
Antimony ..... 46.0¢
Brass .....24.0¢ to 28.5¢
Copper, electrolytic ..... 30.625¢
Copper, reduced ..... 30.5¢
Cadmium ..... $2.40
Chromium, electrolytic, 99% min. ..... $3.50
Lead ..... 24.0¢
Manganese ..... 50.0¢
Molybdenum, 99% ..... $2.65
Nickel, unannealed ..... 51.5¢
Nickel, spherical, minus 80 mesh ..... 53.0¢
Silicon ..... 29.0¢
Solder powder .....3.5¢ plus metal cost
Stainless steel, 302..... 75.0¢
Tin ..... $1.11
Tungsten, 98%, 99%..... $2.90

## COKE

| Furnace, beehive (f.o.b. oven) | Net Ton |
|---|---|
| Connellsville, Pa. | $13.50 to $14.00 |
| Foundry, beehive (f.o.b. oven) | |
| Connellsville, Pa. | 16.00 to 17.00 |
| Foundry, Byproduct | |
| Chicago, del'd | $23.90 |
| Chicago, f.o.b. | 20.85 |
| Detroit, f.o.b. | 19.40 |
| New England, del'd | 22.75 |
| Seaboard, N. J., f.o.b. | 21.50 |
| Philadelphia, f.o.b. | 19.55 |
| Swedeland, Pa., f.o.b. | 20.50 |
| Ashland, Ohio, f.o.b. | 18.25 |
| Painesville, Ohio, f.o.b. | 19.45 |
| Erie, del'd | 19.95 |
| Cleveland, del'd | 17.90 |
| Cincinnati, del'd | 18.55 |
| St. Louis, del'd | 20.95 |
| Birmingham, del'd | 17.85 |

## REFRACTORIES

*(F.o.b. Works)*

### *Fire Clay Brick*

*Carloads, Per 1000*

First quality, Pa., Md., Ky., Mo. (except Salina, Pa., add $5).....$80.00
No. 1 Ohio..... 74.00
Sec. quality, Pa., Md., Ky., Mo..... 74.00
No. 2 Ohio ..... 66.00
Ground fire clay, net ton, bulk (except Salina, Pa., add $1.50)..... 11.50

### *Silica Brick*

Mt. Union, Pa., Ensley, Ala.....$80.00
Childs, Pa. ..... 84.00
Hays, Pa. ..... 85.00
Chicago District ..... 89.00
Western, Utah and Calif..... 95.00
Super Duty, Hays, Pa., Athens, Tex. 85.00
Silica cement, net ton, bulk, Eastern (except Hays, Pa.)....$13.75 to 14.00
Silica cement, net ton, bulk, Hays, Pa. ..... 16.00
Silica cement, net ton, bulk, Ensley, Ala. ..... 15.00
Silica cement, net ton, bulk, Chicago District .....$14.75 to 15.00
Silica cement, net ton, bulk, Utah and Calif. ..... 21.00

### *Chrome Brick*

*Per Net Ton*

Standard chemically bonded, Balt., Chester .....$69.00

### *Magnesite Brick*

Standard, Balt., and Chester.....$91.00
Chemically bonded, Balt. and Chester ..... 80.00

### *Grain Magnesite*

*Std. ⅝-in. grains*

Domestic, f.o.b. Balt. and Chester, in bulk, fines removed.....$56.50
Domestic, f.o.b. Chewelah, Wash., in bulk with fines.....$30.50 to 31.00
in sacks with fines..... 35.00 to 35.50

### *Dead Burned Dolomite*

F.o.b. producing points in Pennsylvania, West Virginia and Ohio, net ton, bulk. Midwest, add 10¢; Missouri Valley, add 20¢.....$11.50

## WAREHOUSE PRICES

*Base prices, delivered metropolitan areas, per 100 lb.*

| CITIES | SHEETS | | | STRIP | | PLATES | SHAPES | BARS | | ALLOY BARS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hot-Rolled | Cold-Rolled (15 gage) | Galvanized (10 gage) | Hot-Rolled | Cold-Rolled | | Standard Structural | Hot-Rolled | Cold-Finished | Hot-Rolled, A 4615 As-rolled | Hot-Rolled, A 4140-50 Ann. | Cold-Drawn, A 4615 As-rolled | Cold-Drawn, A 4140-50 Ann. |
| Philadelphia | $4.45-4.97 | $5.66-5.81 | $5.90-5.92 | $4.85-5.36 | $5.98-6.55 | $4.87 | $4.58 | $4.91 | $5.65-5.73 | $8.50-8.65 | $8.80 | $10.38 | $10.53 |
| New York | 4.74-4.79 | 5.70[1]-5.95[1] | 6.19 | 5.08-5.58 | 6.05-6.30 | 5.09-5.14 | 4.77-4.82 | 5.05-5.08 | 5.78 | 8.58-8.73 | 8.73-8.88 | 10.23-10.43 | 10.43-10.58 |
| Boston | 4.88 | 5.74 | 6.28 | 5.64 | 6.90 | 5.23 | 4.94 | 5.09 | 5.96 | 9.05 | 9.20 | 10.51 | 10.66 |
| Baltimore | 4.27 | .... | 5.62 | 4.79 | .... | 4.72 | 4.69 | 4.84 | 5.66 | .... | .... | ..... | ..... |
| Norfolk | 4.90 | .... | .... | 5.30 | .... | 5.15 | 5.15 | 5.20 | 6.00 | .... | .... | ..... | ..... |
| Chicago | 4.20 | 5.00 | 5.88 | 4.35 | 5.35-6.65 | 4.55 | 4.35 | 4.35 | 5.00-5.10 | 8.20 | 8.35 | 9.50 | 9.65 |
| Milwaukee | 4.42 | 5.22 | 5.87 | 5.02 | 5.57 | 4.77 | 4.57 | 4.57 | 5.334 | 8.534 | 8.684 | 9.784 | 9.984 |
| Cleveland | 4.20 | 5.00[1] | 5.74 | 4.52 | 5.95 | 4.55† | 4.67 | 4.35 | 5.00-5.10 | 8.64 | 8.79 | 9.50 | 9.65 |
| Buffalo | 4.25 | 5.15 | 6.06 | 5.26 | 5.72 | 4.96 | 4.40‡ | 4.40‡ | 5.10 | 8.20 | 8.35 | 9.50 | 9.65 |
| Detroit | 4.60 | 5.45 | 6.07 | 4.80 | 5.70 | 4.90† | 4.80 | 4.50 | 5.16 | 8.72-8.87 | 8.87-9.02 | 9.94-10.17 | 10.14-10.32 |
| Cincinnati | 4.59 | 5.22 | 5.57 | 4.80 | .... | 4.96 | 4.80 | 4.76 | 5.59 | 8.85 | 9.00 | 10.18 | 10.31 |
| St. Louis | 4.59 | 5.39 | 6.17-6.27 | 4.69-5.24 | 5.97 | 4.89-4.94 | 4.74 | 4.74 | 5.62 | 8.82 | 8.97 | 10.07 | 10.42 |
| Pittsburgh | 4.20-4.25 | 5.10[1] | 5.65 | 4.30-4.35 | .... | 4.55 | 4.35 | 4.35 | 5.00 | 8.20 | 8.35 | 9.50 | 9.65 |
| St. Paul | 4.66 | 5.46 | 6.01 | 4.76 | .... | 5.01 | 4.81 | 4.81 | 5.94 | .... | .... | ..... | ..... |
| Omaha | 5.31 | .... | 6.76 | 5.41 | .... | 5.66 | 5.41 | 5.46 | 6.06 | .... | .... | ..... | ..... |
| Indianapolis | 4.52 | 5.31 | 5.96 | 4.62 | 5.72-5.87 | 4.87 | 4.67 | 4.67 | 5.52 | .... | .... | 9.97 | 10.17 |
| Birmingham | 4.45[11] | .... | 5.80 | 4.45[11] | .... | 4.65[11] | 4.40[11] | 4.40[11] | 5.98 | .... | .... | ..... | ..... |
| Memphis | 4.91[11] | 5.98[1] | 5.08[11] | 5.11[11] | 5.23[11] | 5.21[11] | 5.01[11] | 5.01[11] | 5.50 | .... | .... | ..... | ..... |
| New Orleans | *5.08[11] | 6.44[1] | .... | 5.28[11] | .... | 5.38[11] | *5.10[11] | *5.18[11] | 6.34[6] | .... | .... | ..... | ..... |
| Houston | 5.55 | .... | 7.21 | 5.65 | .... | 5.90 | 5.70 | 5.70 | 7.00 | 9.40 | 9.25 | 10.40 | 10.55 |
| Los Angeles | 5.70 | 7.25[1] | 7.30 | 6.00 | 8.60[6] | 5.35 | 5.15** | 5.45 | 7.25[14]-7.35[14] | 9.55[15] | 9.40[15] | 10.95[15] | 11.15[15] |
| San Francisco | 5.35[6] | 6.55-7.25 | 7.05-7.45 | 5.70[6] | 8.60 | 5.30 | 5.10** | 5.00 | 7.40 | 9.55[15] | 9.40[15] | 10.95[15] | 11.15[15] |
| Seattle | 5.45[4] | 7.25[2] | 7.10[2] | 6.15[4] | .... | 5.60[4] | 5.30[4] | 5.65[4] | 7.35[14]-7.45[14] | 8.70[15] | 9.70[15] | ..... | 11.30[15] |
| Portland | 7.70[4] | 7.25[2] | 7.10 | 5.85[4] | .... | 5.70[4] | 5.40[4] | 5.65[4] | 7.45[14] | .... | 8.95[6] | ..... | 11.30[15] |
| Salt Lake City | 6.40 | .... | 7.85 | 6.70 | .... | 6.00 | 6.25 | 6.56 | 7.85 | .... | .... | ..... | ..... |

## BASE QUANTITIES

*Standard unless otherwise keyed on prices.*

**HOT-ROLLED:** Sheets, strip, plates, shapes and bars; 400 to 1999 lb.

**COLD-ROLLED:** Sheets, 400 to 1999 lb; strip, extras on all quantities; bars 1000 lb and over.

**ALLOY BARS:** 1000 to 1999 lb.

**GALVANIZED SHEETS:** 450 to 1499 lb.

**EXCEPTIONS:** (1) 400 to 1499 lb; (2) 450 to 1499 lb; (3) 300 to 4999 lb; (4) 300 to 9999 lb; (5) 2000 lb and over; (6) 1000 lb and over; (7) 400 to 14,999 lb; (8) 400 lb and over; (9) 500 to 1999 lb; (10) 500 to 999 lb; (11) 400 to 8999 lb; (12) 450 to 3749 lb; (13) 400 to 1999 lb; (14) 1500 lb and over; (15) 1000 to 4999 lb; (16) 4000 lb and over; (17) up to 1999 lb.

* Add 46¢ for sizes not rolled in Birmingham.

† Up to ¾ in. thick and 90 in. wide.

‡ Add 41¢ for sizes not rolled at Buffalo.

** Add 15¢ for sizes not rolled at Geneva.

## PIG IRON PRICES

*Dollars per gross ton. Delivered prices represent minimums. Delivered prices do not include 3 pct tax on freight.*

**PRODUCING POINT PRICES**

| Producing Point | Basic | No. 2 Foundry | Malleable | Bessemer | Low Phos. |
|---|---|---|---|---|---|
| Bethlehem | 44.00 | 44.50 | 45.00 | 45.50 | ..... |
| Birmingham | 38.88-42.88 | 39.38-43.38 | ..... | ..... | ..... |
| Buffalo | 44.00 | 44.00 | 44.50 | ..... | ..... |
| Chicago | 42.50 | 43.00 | 43.50 | 44.00 | ..... |
| Cleveland | 43.00 | 43.50 | 43.50 | 44.00 | ..... |
| Duluth | 43.00 | 43.50 | 44.00 | 44.00 | ..... |
| Erie | 42.50 | 43.00 | 43.50 | 40.00 | ..... |
| Everett | .... | 48.75 | 49.25 | ..... | ..... |
| Granite City | 45.25 | 45.75 | 46.25 | ..... | ..... |
| Neville Island | 42.00 | 42.50 | 42.50 | 43.00 | ..... |
| Provo | 43.00 | 43.50 | ..... | ..... | ..... |
| Sharpsville | 43.00 | 43 50 | 43.50 | 44.00 | ..... |
| Steelton | 44.00 | 44.50 | 45.00 | 45.50 | 50.00 |
| Struthers, Ohio | 42.50 | ..... | ..... | ..... | ..... |
| Swedeland | 45.00 | 45.50 | 46.00 | 46.50 | ..... |
| Toledo | 42.50 | 43.00 | 43.50 | 44.00 | ..... |
| Troy, N. Y. | ..... | ..... | ..... | ..... | 46.00 |
| Youngstown | 43.00 | 43.50 | 43.50 | 44.00 | ..... |

**DELIVERED PRICES† (BASE GRADES)**

| Consuming Point | Producing Point | Freight Rate | Basic | No. 2 Foundry | Malleable | Bessemer | Low Phos. |
|---|---|---|---|---|---|---|---|
| Boston | Everett | $0.50 Arb. | ..... | 48.75 | 49.25 | ..... | ..... |
| Boston | Steelton | 6.27 | 50.27 | 50.77 | 51.27 | 51.77 | 56.27 |
| Brooklyn | Bethlehem | 3.90 | 47.90 | 48.40 | 48.90 | 49.40 | ..... |
| Cincinnati | Birmingham | 6.09 | 44.97-48.97 | 45.47-49.47 | ..... | ..... | ..... |
| Jersey City | Bethlehem | 2.39 | 46.39 | 46.89 | 47.39 | 47.89 | ..... |
| Los Angeles | Provo | 6.93 | 49.93- | 50.43 | ..... | ..... | ..... |
| Mansfield | Cleveland-Toledo | 3.03 | 46.03 | 46.53 | 46.53 | 47.03 | ..... |
| Philadelphia | Bethlehem | 2.21 | 46.21 | 46.71 | 47.21 | 47.71 | ..... |
| Philadelphia | Swedeland | 1.31 | 46.31 | 46.81 | 47.31 | 47.61 | ..... |
| Philadelphia | Steelton | 2.81 | 46.81 | 47.31 | 47.81 | 48.31 | 52.81 |
| San Francisco | Provo | 6.93 | 49.93 | 50.43 | ..... | ..... | ..... |
| Seattle | Provo | 6.93 | 49.93 | 50.43 | ..... | ..... | ..... |
| St. Louis | Granite City | 0.75 Arb. | 46.00 | 46.50 | 47.00 | ..... | ..... |

Producing point prices are subject to switching charges; silicon differential (not to exceed 50¢ per ton for each 0.25 pct silicon content in excess of base grade which is 1.75 to 2.25 pct); phosphorus differentials, a reduction of 38¢ per ton for phosphorus content of 0.70 pct and over; manganese differentials, a charge not to exceed 50¢ per ton for each 0.50 pct manganese content in excess of 1.00 pct. $2 per ton extra may be charged for 0.5 to 0.75 pct nickel content and $1 per ton extra for each additional 0.25 pct nickel.

Silvery iron (blast furnace) silicon 6.00 to 6.50 pct, C/L per g.t., f.o.b. Jackson, Ohio—$53.50; f.o.b. Buffalo—$57.75. Add $1.25 per ton for each additional 0.50 pct Si. up to 12 pct. Add 50¢ per ton for each 0.50 pct Mn over 1.00 pct. Add $1.00 per ton for 0.75 pct or more P. Bessemer ferrosilicon prices are $1.00 per ton above silvery iron prices of comparable analysis.

Charcoal pig iron base price for low phosphorus $58.00 per gross ton, f.o.b. Lyle, Tenn. Delivered Chicago, $65.55. High phosphorus charcoal pig iron is not being produced.

### *Ferromanganese*

78-82% Mn, Maximum contract base price, gross ton, lump size, f.o.b. Baltimore, Phila., New York.....$145
F.o.b. Birmingham .....$150
F.o.b. Niagara Falls, Alloy, W. Va., Welland, Ont. .....$145
Carload lots (bulk) .....$145
F.o.b. Rockwood, Tenn.....$150
Less ton lots (packed)..... 189.00
Delivered Pittsburgh ..... 151.00
$1.80 for each 1% above 82% Mn; penalty, $1.80 for each 1% below 78%.

Briquets—Cents per pound of briquet, freight allowed, 66% contained Mn.

| | Eastern | Central | Western |
|---|---|---|---|
| Carload, bulk ... | 8.70 | 8.95 | 9.50 |
| Ton lots ..... | 10.30 | 10.90 | 12.80 |
| Less ton lots .... | 11.20 | 11.80 | 13.70 |

### *Spiegeleisen*

Contract prices, gross ton, lump, f.o.b. Palmerton, Pa.

| | 16-19% Mn 3% max. Si | 19-21% Mn 3% max. Si |
|---|---|---|
| Carloads ..... | $51.00 | $52.00 |
| F.o.b. Pittsburgh.. | 55.00 | 56.00 |

### *Manganese Metal*

Contract basis, 2 in. x down, cents per pound of metal, f.o.b. shipping point, freight allowed, eastern zone.
96% min. Mn, 0.2% max. C, 1% max. Si, 2% max. Fe.

| | |
|---|---|
| Carload, bulk ..... | 32 |
| L.c.l. lots ..... | 34 |

### *Electrolytic Manganese*

F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, cents per pound.

| | |
|---|---|
| Carloads ..... | 32 |
| Ton lots ..... | 34 |
| Less ton lots ..... | 36 |

### *Low-Carbon Ferromanganese*

Contract price, cents per pound Mn contained, lump size, f.o.b. shipping point, freight allowed, eastern zone.

| | Carloads | Ton | Less |
|---|---|---|---|
| 0.07% max. C. 0.06% P, 90% Mn. ..... | 23.00 | 24.85 | 26.05 |
| 0.10% max. C. ..... | 22.50 | 24.35 | 25.55 |
| 0.15% max. C. ..... | 22.00 | 23.85 | 25.05 |
| 0.30% max. C. ..... | 21.50 | 23.35 | 24.55 |
| 0.50% max. C. ..... | 21.00 | 22.85 | 24.05 |
| 0.75% max. C., 7.00% max. Si. ..... | 18.00 | 19.85 | 21.05 |

### *Silicomanganese*

Contract basis, lump size, cents per pound of metal, f.o.b. shipping point, freight allowed, 65-70% Mn, 17-20% Si, 1.5% max. C.

| | |
|---|---|
| Carload bulk ..... | 7.80 |
| Ton lots ..... | 9.45 |
| Briquet, contract, basis, carlots, bulk freight allowed, per lb of briquet | 8.75 |
| Ton lots ..... | 10.35 |
| Less ton lots ..... | 11.25 |

### *Silvery Iron (electric furnace)*

Si 14.01 to 14.50 pct., f.o.b. Keokuk, Iowa, openhearth $78.00, foundry, $79.00; $78.75 f.o.b. Niagara Falls; $77.50 f.o.b. Jackson, Ohio. Electric furnace silvery iron is not being produced at Jackson. Add $1.00 per ton for each additional 0.50% Si up to and including 18%. Add $1.00 for each 0.50 pct Mn over 1 pct.

### *Silicon Metal*

Contract price, cents per pound contained Si, lump size, f.o.b. shipping point, freight allowed, for ton lots packed.

| | Eastern | Central | Western |
|---|---|---|---|
| 96% Si, 2% Fe.. | 16.90 | 17.50 | 18.10 |
| 97% Si, 1% Fe.. | 17.30 | 17.90 | 18.50 |

### *Silicon Briquets*

Contract price, cents per pound of briquet, bulk, f.o.b. shipping point, freight allowed to destination, 40% Si, 1 lb Si briquets.

| | Eastern | Central | Western |
|---|---|---|---|
| Carload, bulk ... | 5.25 | 5.50 | 5.70 |
| Ton lots ..... | 6.85 | 7.45 | 7.75 |
| Less ton lots ... | 7.75 | 8.35 | 8.65 |

### *Electric Ferrosilicon*

Contract price, cents per pound contained Si, lump size in carloads, f.o.b. shipping point, freight allowed.

| | Eastern | Central | Western |
|---|---|---|---|
| 25% Si ..... | 16.50 | .... | .... |
| 50% Si ..... | 9.30 | 9.80 | 10.00 |
| 75% Si ..... | 11.80 | 12.10 | 12.85 |
| 85% Si ..... | 13.30 | 13.60 | 14.35 |
| 90% Si ..... | 15.00 | 15.30 | 16.00 |

### *Calcium Metal*

Eastern zone contract prices, cents per pound of metal, f.o.b. shipping point, freight allowed. Add 1.5¢ for central zone; 3.5¢ for western zone.

| | Cast Turnings | Distilled |
|---|---|---|
| Ton lots .....$1.85 | $2.70 | $3.40 |
| Less ton lots ..... 2.20 | 3.05 | 4.20 |

### *Ferrochrome* (65-72% Cr, 2% max. Si)

Contract prices, cents per pound, Contained Cr, lump size in carloads, f.o.b. shipping point, freight allowed.

| | Eastern | Central | Western |
|---|---|---|---|
| 0.06% C ..... | 26.50 | 26.90 | 27.00 |
| 0.10% C ..... | 26.00 | 26.40 | 26.50 |
| 0.15% C ..... | 25.50 | 25.90 | 26.00 |
| 0.20% C ..... | 25.25 | 25.65 | 25.75 |
| 0.50% C ..... | 25.00 | 25.40 | 25.50 |
| 1.00% C ..... | 24.50 | 24.90 | 24.75 |
| 2.00% C ..... | 24.25 | 24.65 | 24.75 |
| 65-69% Cr, 4-9% C ..... | 18.60 | 19.00 | 19.15 |
| 62-66% Cr. 4-6% C. 6-9% Si. ..... | 19.45 | 19.85 | 20.00 |

Briquets — Contract price, cents per pound of briquet, f.o.b. shipping point, freight allowed, 60% chromium.

| | Eastern | Central | Western |
|---|---|---|---|
| Carload, bulk ... | 12.50 | 12.75 | 12.85 |
| Ton lots ..... | 14.00 | 14.90 | 15.50 |
| Less ton lots.... | 14.90 | 15.80 | 16.40 |

### *High-Nitrogen Ferrochrome*

Low-carbon type: 67-72% Cr, 0.75% N. Add 2¢ per lb to regular low carbon ferrochrome price schedule. Add 2¢ for each additional 0.25% N.

### *S. M. Ferrochrome*

Contract price, cents per pound chromium contained, lump size, f.o.b. shipping point, freight allowed.

High carbon type: 60-65% Cr, 4-6% Si, 4-6% Mn, 4-6% C.

| | Eastern | Central | Western |
|---|---|---|---|
| Carload ..... | 19.70 | 20.10 | 20.25 |
| Ton lots ..... | 21.85 | 23.15 | 23.95 |
| Less ton lots .... | 23.35 | 24.65 | 25.45 |

..Low carbon type: 62-66% Cr, 4-6% Si, 4-6% mn, 1.25% max. C.

| | Eastern | Central | Western |
|---|---|---|---|
| Carload ..... | 25.00 | 25.40 | 25.50 |
| Ton lots ..... | 27.30 | 27.95 | 29.15 |
| Less ton lots ... | 29.10 | 29.75 | 30.95 |

### *Chromium Metal*

Contract prices, cents per lb, chromium contained carload packed, f.o.b. shipping point freight allowed, 97% min. Cr. 1% max. Fe.

| | Eastern | Central | Western |
|---|---|---|---|
| 0.20% max. C. .. | 97.00 | 98.50 | 99.75 |
| 0.50% max. C. .. | 93.00 | 94.50 | 95.75 |
| 9.00% min. C. .. | 91.50 | 93.00 | 94.25 |

### *Calcium—Silicon*

Contract price per lb of alloy, lump, f.o.b. shipping point, freight allowed.
30-35% Ca, 60-65% Si, 3.00% max. Fe
Cr 28-32% Ca, 60-65% Si, 6.00% max. Fe.

| | Eastern | Central | Western |
|---|---|---|---|
| Carloads ..... | 16.25 | 16.75 | 18.80 |
| Ton lots ..... | 19.35 | 20.10 | 22.25 |
| Less ton lots .... | 20.85 | 21.60 | 23.75 |

### *Calcium—Manganese—Silicon*

Contract prices, cents per lb of alloy, lump, f.o.b. shipping point, freight allowed.
16-20% Ca, 14-18% Mn, 53-59% Si.

| | Eastern | Central | Western |
|---|---|---|---|
| Carloads ..... | 17.50 | 18.00 | 20.05 |
| Ton lots ..... | 19.80 | 20.65 | 22.40 |
| Less ton lots .... | 20.80 | 21.65 | 23.40 |

### *CMSZ*

Contract price, cents per pound of alloy, f.o.b. shipping point, freight allowed.
Alloy 4: 45-49% Cr, 4-6% Mn, 18-21% Si, 1.25-1.75% Zr, 3.00-4.5% C.
Alloy 5: 50-56% Cr, 4-6% Mn, 13.50-16.00% Si, 0.75 to 1.25% Zr, 3.50-5.00% C.

| | Eastern | Central | Western |
|---|---|---|---|
| Ton lots ..... | 18.00 | 19.10 | 21.05 |
| Less ton lots .... | 19.25 | 20.35 | 22.30 |

### *V Foundry Alloys*

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed. V-5: 38-42% Cr, 17-19% Si, 8-11% Mn. V-7: 28-32% Cr, 15-21% Si, 14-16% Mn.

| | |
|---|---|
| Ton lots ..... | 14.60¢ |
| Less ton lots ..... | 15.85¢ |

### *Graphidox No. 4*

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed. Si 56%, Ti 9%, Ca 5%.

| | |
|---|---|
| Ton lots ..... | 17.90¢ |
| Less ton lots ..... | 19.40¢ |

### *SMZ*

Contract price, cents per pound of alloy, f.o.b. shipping point, freight allowed. 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe, ½ in. x 12 mesh.

| | Eastern | Central | Western |
|---|---|---|---|
| Ton lots ..... | 15.75 | 16.85 | 18.80 |
| Less ton lots .... | 17.00 | 18.10 | 20.05 |

### *Other Ferroalloys*

Ferrotungsten, standard, lump or ¼ x down, packed, f.o.b. plant Niagara Falls, Washington, Pa., York, Pa., per pound contained W, 5 ton lots, freight allowed... $2.25

Ferrovanadium, 35-55%, contract basis, f.o.b. plant, freight allowances, per pound contained V.

| | |
|---|---|
| Openhearth ..... | $2.90 |
| Crucible ..... | 3.00 |
| High speed steel (Primos)..... | 3.10 |

Vanadium pentoxide, 88-92% $V_2O_5$ contract basis, per pound Contained $V_2O_5$ ..... $1.20

Ferrocolumbium, 50-60%, contract basis, f.o.b. plant, freight allowed, per pound contained Cb

| | |
|---|---|
| Ton lots ..... | $2.50 |
| Less ton lots ..... | $2.55 |

Ferromolybdenum, 55-75%, f.o.b. Langeloth, Washington, Pa., per pound contained Mo. ..... 95¢

Calcium molybdate, 45-50%, f.o.b. Langeloth, Washington, Pa., per pound contained Mo. ..... 80¢

Molybdenum oxide briquets, 48-52% Mo, f.o.b. Langeloth, Pa., per pound contained Mo..... 80¢

Molybdenum oxide in bags, f.o.b. Langeloth and Washington, Pa., per pound contained Mo..... 80¢

Ferrotitanium, 40-45%, 0.10% C max., f.o.b. Niagara Falls, N. Y., ton lots, per pound contained Ti $1.22

Ferrotitanium, 20-25%, 0.10% C max., ton lots, per pound contained Ti ..... $1.35
Less ton lots ..... $1.40

High carbon ferrotitanium, 15-20%, 6-8% C, contract basis, f.o.b. Niagara Falls, freight allowed, carloads, per net ton....$152.50

Ferrophosphorus, electrolytic, 23-26%, carlots, f.o.b. Siglo, Mt. Pleasant, Tenn., $3 unitage, per gross ton ..... $65.00
10 tons to less carload..... $75.00

Zirconium, 35-40%, contract basis, f.o.b. plant, freight allowed, per pound of alloy.
Carload lots ..... 18.40¢

Zirconium, 12-15%, contract basis, lump, f.o.b. plant, freight allowed, per pound of alloy.
Carload, bulk ..... 6.00¢

Alsifer, 20% Al, 40% Si, 40% Fe, contract basis, f.o.b. Suspension Bridge, N. Y.

| | |
|---|---|
| Carload ..... | 7.20¢ |
| Ton lots ..... | 7.70¢ |

Simanal, 20% Si, 20% Mn, 20% Al, contract basis, f.o.b. Philo, Ohio, freight allowed, per pound

| | |
|---|---|
| Car lots ..... | 10.50 |
| Ton lots ..... | 11.25 |

### *Boron Agents*

Contract prices per pound of alloy, f.o.b. shipping point, freight allowed.
Ferroboron, 17.50% min. B, 1.50% max. Si, 0.50% max. Al, 0.50% max. C.

| Eastern | Central | Western |
|---|---|---|
| $1.20 | $1.23 | $1.31 |

Manganese—Boron 75.00% Mn, 15-20% B, 5% max. Fe, 1.50% max. Si, 3.00% max. C.

| | | | |
|---|---|---|---|
| Ton lots ..... | $1.89 | $1.903 | $1.935 |
| Less ton lots. | 2.01 | 2.023 | 2.044 |

Nickel—Boron 15-18% B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni.

| Eastern | Central | Western |
|---|---|---|
| Less ton lots...$1.80 | $1.8125 | $1.8445 |

Silcaz, contract basis, f.o.b. plant freight allowed, per pound.
Carload lots ..... 39.00¢

Grainal, f.o.b. Bridgeville, Pa., freight allowed, 50 lb and over.

| | |
|---|---|
| No. 1 ..... | 97¢ |
| No. 6 ..... | 63¢ |
| No. 79 ..... | 45¢ |

Bortam, f.o.b. Niagara Falls

| | |
|---|---|
| Ton lots, per pound..... | 45¢ |
| Less ton lots, per pound..... | 50¢ |

Carbortam, f.o.b. Suspension Bridge, N. Y., freight allowed. Ti 15-18%, B 1.00-1.50%, Si 2.5-3.0%, Al 1.0-2.0%.
Ton lots, per pound..... 8.625¢

Borosil, f.o.b. Philo, Ohio, freight allowed, B 3%-4%, Si 40%-45%, per lb contained B..... $6.25

# A Great Seller

## ...because it's a Comfortable Eye-Protector!

## AO F-9200 Acetate Goggle

When we brought it out, we were sure there was a great future ahead for this goggle of non-flammable cellulose acetate butyrate—but its popularity has surprised even ourselves! Here are its features that workers appreciate:

1. ASSURED PROTECTION.
2. Hinges and temples out of line of sight.
3. Smarter appearance.
4. Lenses that conform to and cover eye orbit.
5. Improved fit.
6. Comfortable, lightweight, face-formed bridge.
7. Nosepads which distribute goggle weight *evenly.*

This goggle does a prime protection job on operations in chemical and electrical plants where the tiniest spark might cause fire or explosion. Because of its acetate construction it is especially recommended for these and similar jobs where metal goggles might not be recommended. Available with ventilated side shields for added safety against lateral-striking objects. Lenses are 6-Curve Super Armorplate. When protection from glare, ultraviolet or infra-red radiations is a "must", specify Calobar lenses. For a handy source of supply, see the AO representative. There is always one near you.

*Safety Division of*

American Optical COMPANY

SOUTHBRIDGE, MASSACHUSETTS • BRANCHES IN PRINCIPAL CITIES

## PERSONALS

*(Continued from page 112)*

• **H. L Watson** has retired as president of DeLaval Steam Turbine Co., Trenton, N. J. He will continue to be part of the company's management serving in the capacity of director and chairman of the executive committee. **George W. Smith, Jr.,** has been elected to succeed Mr. Watson. Mr. Smith joined DeLaval in 1947 as assistant to the president. He was formerly senior member of the firm of Smith & Wood, industrial engineering consultants, and has served as vice-president and director of White Motor Co.

• **John W. Brown** has been appointed general sales manager, National Gypsum Co., Buffalo. **James J. Ryan** has been named to the newly created position of general commodity manager. Mr. Brown joined the company in 1935 and has been sales manager of the Dallas district since 1941. Mr. Ryan joined the company in 1934 and was designated manager of gypsum, lime and steel products sales earlier this year.

• **Henry C. Grebe** has been appointed director of body engineering, Ford Motor Co., Dearborn, Mich. Mr. Grebe joined the engineering department in 1947. He was previously associated with Fisher Body Corp. **George Hardesty** has been named director of production control, **C. B. VerDuin,** resident controller and **A. M. Wilson,** traffic manager of the Ford Highland Park plant. Mr. Hardesty joined the company in 1935 and was later named assistant superintendent of tractor manufacturing. Mr. VerDuin has been in charge of the cost analysis section. Mr. Wilson has been associated with the company for 25 years and was formerly traffic manager of the Ford Dearborn district. **Robert F. Kohr** has been named director of engineering research. Mr. Kohr joined Ford in 1945. **Fred G. Rumball** has been made head of the West Coast purchasing operation, succeeding **L. C. Disser,** who has retired.

• **Fred J. Menninger** has been promoted to the position of assistant plant manager at the Newark, N. J. facility of Federated Metals, division of American Smelting & Refining Co. **Earl R. Marble, Jr.,** formerly assistant to the manager of technical operations, has been appointed to succeed Mr. Menninger as plant superintendent.

• **William H. Shank** has been named advertising manager, Hardinge Co., Inc., York, Pa., succeeding **R. C. Ferguson,** who has been made North Central district manager. Mr. Shank was formerly manager of public relations and house organs for the company.

• **James O. Winston, Jr.,** has been elected a member of the board of directors of Freeport Sulphur Co., New York.

• **E. B. Newill,** general manager of the Allison Div., General Motors Corp., Indianapolis, Ind., since 1943, has been elected a vice-president of the corporation. Mr. Newell joined General Motors in 1929.

• **Frank G. Weyforth** of Interstate Sales, St. Louis, has been appointed district representative, Hiram Swank's Sons, Johnstown, Pa.

• **Ralph S. Drummond** has been appointed manager of the Cincinnati office of Crocker-Wheeler Electric Mfg. Co., division of Joshua Hendy Corp. Mr. Drummond was formerly sales manager of Dynamotor Corp.

• **David K. Colesberry** has been named general sales manager of Harrington & King Perforating Co., Chicago. Mr. Colesberry was formerly associated with the Sharples Corp.

• **Clifford V. Coons** has been appointed vice-president in charge of sales and **G. M. Greenwood** has been named vice-president and treasurer, Rheem Mfg. Co. Mr. Coons joined the company as a timekeeper at the Richmond, Calif. plant in 1934. He has been successively, manager of the Houston plant, manager of container sales in New York, and since 1945, general manager of sales. He will continue to make his headquarters in New York. Mr. Greenwood, who joined the Rheem Co. in 1941 as treasurer, was made a member of the board of directors later that year. He will continue to be located in the company's San Francisco office.

• **H. T. Sawyer,** formerly manager of the Seattle office of the Bailey Meter Co., has been promoted to the company's larger Buffalo office, succeeding S. W. Nelson, who died. Mr. Sawyer joined the company in 1935, and has been manager of the Seattle office since 1942. **K. E. Atwood** has been named to succeed

Mr. Sawyer in Seattle. Mr. Atwood became associated with the company in 1937 and for the last ten years has been attached to the Boston office. From the Clevland main office, **R. E. Erickson** has been assigned to the Philadelphia office; **F. J. Ghezzi** to the Schenectady office; **F. D. Krusemark** to the Denver Office; **A. Martin** to the Atlanta office; **J. R. Brennan** to the Buffalo office and **R. R. Beal** and **D. A. Gearhart** to the St. Paul Office. **L. E. Bartel** has been assigned to the Kansas City office from St. Louis office.

• **Val O. Guyton** has been appointed traveling freight agent, Wabash R. R. Co., St. Louis, succeeding **Tom O'Connell**, who has retired after 53 years with the company. **William J. Imgrund** has been appointed traveling freight agent at Salt Lake City, succeeding **Vincent F. Bocklage**, who has resigned.

• **Harold F. Smiddy** has been appointed general manager of the Chemical Dept., General Electric Co., with his headquarters in Pittsfield, Mass. Mr. Smiddy has been on the staff of the president of the company, and until he joined G. E. he was a partner in Booz, Allen & Hamilton, industrial management consultants.

• **Charles H. Longfield, Jr.**, has joined the sales department of Cold Metal Products Co., Youngstown. Mr. Longfield was formerly connected with the Sharon Steel Corp.

• **Laurence J. White** has ben appointed Chicago area representative, Wellman Bronze & Aluminum Co., Cleveland, Ohio.

• **Marion A. Boulden** has joined the sales-engineering staff of C. Lee Cook Mfg. Co., Louisville. Mr. Boulden will have his headquarters in Charleston, W. Va.

• **Corliss A. Bercaw**, formerly district sales manager in the Chicago region, has been appointed Pacific Coast regional manager, Electro-Motive Div., General Motors Corp., with his headquarters in San Francisco. Mr. Bercaw succeeds **Ernest Kuehn**, who has retired. Mr. Kuehn will be available as consultant until Jan. 1, 1949. He joined Electro-Motive shortly after it was founded. Mr. Bercaw joined Electro-Motive as district sales manager in Chicago in 1945. **George W. Rukgaber**, formerly a district sales representative in Chicago, succeeds Mr. Bercaw in that region.

## Canadian Production of Iron and Steel Shapes Up

*Toronto*

• • • **Canadian production** of primary iron and steel shapes for the month of April totaled 318,594 net tons, as compared with 302,902 tons in March and with 277,010 tons for April 1947. Output for April included 305,182 tons of carbon steel shapes and 13,412 tons of alloy steel shapes. In the production figures for April are included 85,667 tons of shapes shipped to producers own plants or plants within the primary industry for further processing.

Shipments for sale of primary iron and steel shapes in April amounted to 220,508 net tons of which 206,875 tons were carbon steel shapes and 13,633 tons alloy steel shapes; in March shipments totaled 226,748 tons and included 210,106 tons of carbon and 16,642 tons of alloy steel shapes, and for April 1947, shipments amounted to 206,682 tons including 197,344 tons of carbon and 9,338 tons of alloy steel shapes. The above figures, which show iron and steel shapes for sale, do not include deliveries for further processing.

## Oil Companies Merge

*Cleveland*

• • • **Proposed merger** of Allied Oil Co. Inc. with Ashland Oil & Refining Co. has been approved by the directors of both companies according to W. W. Vanderveer and F. R. Newman, organizers and principal owners of Allied.

The merger was consumated to make the business of the combined companies substantially more flexible and cover a larger area than would be possible for then individually.

Allied Oil Co. Inc., Central Pipeline Co. and Cleveland Tankers Inc. will operate as separately managed and wholly owned subsidiaries of the expanded Ashland Oil & Refining Co. It is planned that the organizations of these subsidiary companies will be kept intact.

## New Chapter Elects Officers

*Toledo, Ohio*

• • • **A Toledo chapter** of the Materials Handling Institute, Inc. has been formed by 42 materials

# Foundry cuts annealing and firing time practically in two!

## How Johns-Manville Insulating Fire Brick enables 6 new furnaces to do work formerly requiring 12

This is the story of a foundry that called on Johns-Manville Insulation Engineers about the plans for their new annealing furnaces.

The company had been operating 12 furnaces constructed with heavy fire brick. One of these furnaces was rebuilt, for test purposes, with insulating materials recommended for the job by Johns-Manville Insulation Engineers. After the furnace was completed, exhaustive operating tests were made and results were compared with the old furnaces.

### Test Results

The old furnaces in this foundry performed with an average annealing cycle of 120 hours. The new furnace made it possible to cut the annealing cycle to as low as 72 hours.

Partially completed furnace with J-M materials ready for installation.

The firing time was 80-100 hours depending upon the quality of fuel available. Average firing time in the new furnace was cut to 40 hours.

These results were so striking that the management decided to build 5 additional furnaces of similar construction.

The 6 new furnaces, as engineered by Johns-Manville, are expected to fill all production needs of the plant—replacing entirely the 12 old-style furnaces—resulting in doubled operating efficiency.

### Materials Used

The furnace walls were built with thirteen and a half inches of JM-23 Insulating Fire Brick. In every fifth course, vertically, a header row of brick was used with a stretcher course of brick to tie the wall into a solid unit.

To further decrease the heat transfer through the walls, a combination of 2″ thickness of J-M Superex Blocks and 1″ thickness of 85% Magnesia Blocks was used between the insulating brick walls and the outer steel casing.

The arch was constructed with a 9″ thickness of JM-26 Insulating Fire Brick. Over this, 5 inches of Sil-O-Cel Natural Brick was installed in two 2½″ layers. That part of the arch subject to abrasion from the powdered fuel is constructed of fire brick. In order to keep the heat transfer approximately uniform over the entire arch area, that portion constructed of fire brick was backed with a 2½″ thickness of J-M Superex Blocks. And, over this, five inches of Sil-O-Cel Natural Brick was applied.

Cutting J-M Insulating Fire Brick on the job.

J-M 1626 cement was used as bonding agent.

The furnace bottom was insulated first with a 4″ thickness of Sil-O-Cel C-3 concrete. Over this base, ten inches of Sil-O-Cel C-22 brick were laid. A 4″ course of paving brick supplies the wearing surface for the high load-bearing insulating material used for the furnace bottom.

### Engineering Service

The same service performed by J-M Insulation Engineers in selecting the right combination of insulating materials to increase efficiency for this plant can be made available to you. Write Johns-Manville, Box 290, New York 16, New York.

JOHNS-MANVILLE JM PRODUCTS

handling men representing 20 industries in the Toledo area.

Purpose of the organization is to improve methods of moving, storing and shipping materials and to help members obtain and exchange information.

Nine meetings a year are scheduled at which materials handling experts will present new developments. Plant tours are also being planned.

E. H. Marek, Willys-Overland Motors, Inc. has been elected president of the new chapter. Other officers include: M. A. Cox, Doehler-Jarvis Corp., vice-president; A. E. Fryer, editor of Toledo Technical Topics, secretary; and N. W. Franklin, Electric Auto-Lite Co., treasurer.

## Schools Receive Awards For Arc Welding Papers

*Cleveland*

• • • **Awards of $1,000** to the University of Cincinnati, $500 to the University of Minnesota and $250 to Iowa State College were presented by the James F. Lincoln Arc Welding Foundation for scholarships in each school.

These awards represent top honors in the foundation's annual engineering undergraduate award and scholarship program for the best papers on arc welding and its uses.

The scholarship funds are awarded to the schools in which the 3 best papers originated. Duplicate cash awards were made to each author.

Papers were submitted by students from 46 different colleges in all parts of the country.

## Iowa Offers Short Course

*Iowa City, Iowa*

• • • **An intensive** course in quality control by statistical methods will be given at the University of Iowa from Oct. 5 to 15 according to Deans F. M. Dawson and Earl J. McGrath.

This is the sixth course offered by the state university. It is designed for persons in a supervisory capacity and where the knowledge gained can be used immediately. The course is particularly valuable to quality control supervisors, managers, industrial engineers, production engineers, designing engineers and for persons in charge of speci-

# America won't be over-produced ...but it might be undersold!

THE often-expressed fear that America may soon be over-produced becomes obviously false when we study our present business situation.

*Buying power of our population today, even in the face of high taxes and inflated prices, is 53% greater than in 1940.*

60% (28 millions) of our families now have yearly incomes in excess of $2,000. The comparable figure for 1940 was 36%. In 1935 it was only 16%.

Economists advise that, after allowing for necessary expenditures for food, clothing, shelter, taxes, reasonable savings, etc., we have 90 billion dollars left over.

This is not earmarked for any specific purpose. It is "free" money which we Americans have in our pockets. With it we can buy autos, radios, homes, fur coats . . . anything we want. And—it is almost four times the amount of unallotted cash ($22.8 billion) which we had in 1940.

*This 90 billions of purchasing power guarantees the continuance of good business*—IF WE DO A GOOD SELLING JOB.

Regardless of how much money he has, Mr. Average Citizen won't buy unless he is sold. He'll defer purchases for long periods of time . . . or entirely. He'll tend to become satisfied with present possessions—unless someone sells him on the idea of acquiring better ones.

*That's where our only real depression danger lies today . . .* in UNDERSELLING!

Before the war, in 1940, American business had 3,188,854 salesmen. Today, it employs only 2,750,000.

Can this reduced sales force meet the challenge of a 90 billion dollar "free" market? Can nine salesmen sell almost four times as much in '48 as ten sold in '40?

The answer is obvious.

*America needs 1,000,000 more salesmen*—NOW!

P&P-5042

David J. Bennell

*Vice Pres., Charge of Sales*

**CLEVELAND CHAIN**

**The Cleveland Chain & Mfg. Co.** *Cleveland 5, Ohio*

Certified CHAIN INSTITUTE Member

Associate Companies: David Round & Son, Cleveland 5, Ohio • The Bridgeport Chain & Mfg. Co., Bridgeport 1, Conn. • Seattle Chain & Mfg. Co., Seattle 8, Wash. • Round California Chain Co., So. San Francisco and Los Angeles 54, California Woodhouse Chain Works, Trenton 7, N. J.

*Since* DR DAVID ROUND 1869

*Security In Every Link*

fications for materials or persons responsible for incoming materials.

Professor Lloyd A. Knowler, department of mathematics, is in charge of registration.

## Reserves of Red Ore Uncovered in Alabama

*Washington*

• • • **Substantial** reserves of red iron ore, suitable for use in the blast furnaces of the Alabama districts have been uncovered by Bureau of Mines explorations in St. Clair and Etowah Counties, Alabama.

Results of the bureau's work of investigating the extent of iron ore deposits in Greasy Cove and Shinbone Ridge indicated a store of nearly 7 million tons of recoverable ore.

Approximately 2.2 million tons of good quality hard ore was estimated in the Shinbone Ridge area. Another 4.8 million tons was estimated as underground at the southeast end of the Greasy Cove deposit.

Although the Greasy Cove ore does not meet present commercial standards, bureau engineers report, it should "prove of more than ordinary value as a fluxing material." It is readily accessible to both Alabama City and Birmingham.

A complete report of the investigation made last year is now available by writing the bureau's Pittsburgh office at 4800 Forbes St.

## President Reelected by Chicago Technical Group

*Chicago*

• • • **Dr. Gustav Egloff,** director of research, Universal Oil Products Co., has been reelected president of the Chicago Technical Societies Council.

Other officers for the 1948-1949 term are: Dr. Clyde A. Crowley, executive vice-president; Lewis A. Bain, Robert H. Bacon, Dr. Herman S. Bloch, and Paul S. Smith, vice-presidents; R. T. Van Niman, corresponding secretary; William Kucinski, recording secretary; and Frederic E. Oakhill, treasurer.

New directors are: Dr. Johan A. Bjorksten, W. Fred Dolke and Clarence M. Sieben. Incumbent directors are: Kenneth H. Hobbie, John E. Ott, Jean O. Rienecke and Dr. H. A. Wagner.

The Chicago Technical Societies Council is a federation of 53 professional societies with a combined membership of 20,000 scientists, engineers and technologists in the Chicago area.

## PEI Looks for Goodly Crowd at Tenth Forum

*Washington*

• • • **The Porcelain** Enamel Institute is already looking forward to breaking attendance records at its tenth annual forum on Oct. 13 to 15. It will be held at the University of Illinois, Urbana, Ill.

The forum is the porcelain enameling industry's annual technical and production session. The institute also holds a sales conference in connection with its regular annual meeting.

This year the forum program features a panel discussion of titanium enamel developments and the application of cover coats directly to steel. Other papers to be presented will discuss quality control through incentives, liquid and airborne waste control, cost budgeting, safety and health, an industry-wide survey of drying practices and high temperature ceramics for aircraft power plants.

## Report Covers Idaho Ores

*Washington*

• • • **Bureau of Mines** says in a new report on Idaho copper-cobalt ores that commercially acceptable copper and cobalt concentrates can be produced by ordinary ore-dressing methods from ores in Lemhi County, Idaho.

The bureau has been conducting pilot-plant experiments in the Blackbird area of Idaho. Electrolytic cobalt experiments have been carried out at Boulder City, Nev. The concentrates produced are described as being of "good quality."

## New Gas Barges in Service

*Pittsburgh*

• • • **Faster** transportation of gasoline to midwestern points along the Mississippi and Illinois Rivers has been inaugurated by A. L. Mechling Barge Line, Inc., Joliet, Ill., with a pair of Dravo barges especially designed and built here for this service.

Each of the welded steel barges can carry 19,000 bbl of gasoline. They are 240 ft long, 50 ft wide and 12 ft deep, among the largest of barges now operating on inland rivers.